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"Samona II" driving into Antarctic seas on the way to the Horn

Cruising in Patagonia

Exploring the Straits of Magellan in a Diesel Cruiser

By JOHN V. DEUEL

MUDDY waters of the Rio de la Plata curled from the bow of *Samona II*. From the low shores of Uruguay which lay to starboard, protruded the spires of its glittering capitol — Montevideo. To our port a large vessel swung at anchor on which we read in bold letters *"Recalada Practicos"* (pilot ship). We paused briefly in the river's swift and boiling current which manifests itself to the extreme on the ebb tide, to take on our *pilote marinero*. It was after five o'clock and the long, slanting rays of the midsummer sun reached far out over the Pampas plains, bringing the close of a beautiful January day in the Argentine.

Our pilot informed me that we would not arrive at the greatest metropolis in all South America — Buenos Aires — until morning. "Si Señor, all night we shall travel the estuary which forms the great marine highway to the great Argentine Republic," he continued. "And, Caramba-Sacramento! when you arrive at the Yacht Club Argentino with one big yacht like this, you will come from her one beeg re-re-reception."

The primary motive of our voyage was to procure rare specimens of birds, animals, fish, bugs and reptiles for the various museums of America; this, combined with the joys of real yachting and the fact that we were on the longest fishing trip in the world, enhanced the zest of our gypsy wanderings. Day after day and month after month, we had traveled the trackless paths of seas, bays, gulfs, rivers and canals, from the jungle shores of Central

Under the W. J. Hole Expedition, "Samona II," a 148-foot Diesel completed a voyage around South America

Above. Clouds, snow, rain and rock in the Straits of Magellan. Right. Humbolt penguins in Shag Narrows

America to island gems of the South Seas; back through Panama and across the Spanish Main to the French Penal Colony on the scorching, equatorial islands of Guiana — Land of Torment; seventeen hundred miles up the mighty Amazon and thence on down the coast to romantic Rio. Thus our now invisible trail led through lands of mystery, intrigue and romance. Our decks, loaded with weird and bizarre creatures collected from remote lands, told of the success of our primary mission.

Suddenly, in Rio de Janeiro, we had decided that it was no further around the Horn home to California than it was north around Cabo Sao Roque, the most easterly point of Brazil, and through the Canal. And then, too, numerous unexplored islands of Patagonia were beckoning to a desire old as the world.

We were forced to put into Buenos Aires to obtain charts and information on those little known and seldom frequented islands of the Western Patagonian Archipelago. But even under compulsory circumstances, "B. A.," as most South Americans prefer to call the Argentine metropolis, is a pleasant and interesting indulgence.

The captain of an English vessel which was loading cargo in Buenos Aires helped us in procuring charts and information. He had rounded the Horn many times. When we informed him that *Samona II* was a steel hull of 148 feet, powered with two 600 horse Winton Diesels, he advised that the weather could sometimes be worse, even, than terrible, and urged us to procure emergency clearance papers for Magallanes, Chile, in the event that we were driven into the Straits of Magellan by storm. His was wise counsel.

Reluctantly we left Buenos Aires, and, with the ebbing tide, we were carried swiftly to the sea. Two days south of Mar del Plata, which is near the mouth of the Rio de la Plata, we began to feel the cold blasts of the Antarctic. Giant albatross swung gracefully about the ship on long, narrow pinions. On some the wing spread reached nearly fourteen feet. Huge swells swept in from the south and hurled icy spray over the bridge; a gray, brooding desolation seemed to settle down over us.

The English captain had advised that while it would be midsummer in Patagonia, neither season, time, nor tide could be depended upon as a criterion of weather conditions among these bleak and desolate islands. He cautioned us, further, that the barometer would fluctuate with the rapidity of an airplane altimeter in a series of power dives, but neither this nor the hundred and one other indications known to mariners in other parts of the world could be relied upon.

As we continued southward the cold became more and more intense, and two days south of the Plata we were forced to turn on the steam heat. When the shores were visible they presented a bleak, desolate, abrupt bit of scenery. Our hopes for a pleasant voyage were not elevated to any extent as we consulted the pilot book issued by the British Admiralty on the pages of which are found numerous paragraphs similar in tone to the following excerpt:

"The range of islands about Tierra del Fuego and western Patagonia are about the most inhospitable lands found on the face of the globe. Abrupt mountain shores, deep bogs and matted forests form this desolate country which is very imperfectly known and seldom frequented by any one from the civilized world. Immense glaciers extend down to the sea, and snow, sleet, rain and terrific gales occur throughout the year. Penguins, seals, guanacos, the tucotuco fox and a very large and dangerous specie of wild dog, along with a number of birds and a few small rodents, form the only wild life."

"Due to the extreme difficulties which lie in the path of navigation, a rescue vessel leaves Magallanes every two weeks to pick up those in distress. If wrecked when eastward of Barnevelt Islands, it would be advisable for boats or floating survivors to make for Harberton Island if possible, as the tide sets in toward the island, making headway comparatively easy. Here a small hut with food will be found high up on the slope amid tall grass in summer. The Yaghan and Onas Indians are not dangerous, but must not be trusted. The Alacalufes, on the other hand, are treacherous and aggressive savages of one of the lowest forms, and of a wild and desperate nature. The latter are seldom encountered east of Cape Froward."

The good book is full of just such consoling information, and, when the ultra-conservative Britisher puts out such information, one is inclined to believe the warning conveyed must be justified.

Six hours out of Cape Virgenes, the easterly entrance to the Magellan Straits, we encountered a sixty-mile gale that changed our ideas about rounding the Horn and drove us into the Straits. We found difficulty in locating Cape Virgenes and even after we had decided that the white cliffs forming the seaward termination of a low range of hills must be Cape Virgenes, we found that we were looking at Cabo Espiritu Santo, the southern point of the eastern entrance which is so identical to Virgenes.

No sooner had we made the entrance than the wind shifted and sleet began to fall so thick that for a time we lost the shore. The tidal fall here is some forty feet and the eight-knot current flowing seaward through the first narrows soon made us aware that we had entered on the ebb tide. The two-mile width of the channel in the first narrows gave us our first close-up of the land — a weird, desolate mass of rolling hills covered with coarse grass, stretching away in silent solitude. Black and white porpoise by the dozens, accompanied by Humbolt penguins which they so nearly resemble, raced beside us.

Cruising at fourteen knots, it took us nearly all day to reach Magallanes, Chile, on the north shore of the Straits, the southernmost town in the world, ten degrees farther south than Hobart, Tasmania. So far, through the Straits, we had seen not a single tree. The landscape

Above. The glacier of Bahia Ventisquero reaches down to the sea. Right. Magallanes, Chile, the southernmost town in the world

appeared much the same, except that a most remarkable difference takes place in the appearance of the land according to the light in which it is seen. The depth of the channel averaged between thirty and forty fathoms continually, but there are numerous rocks and shoals, and we found that the open harbor at Magallanes is not safe.

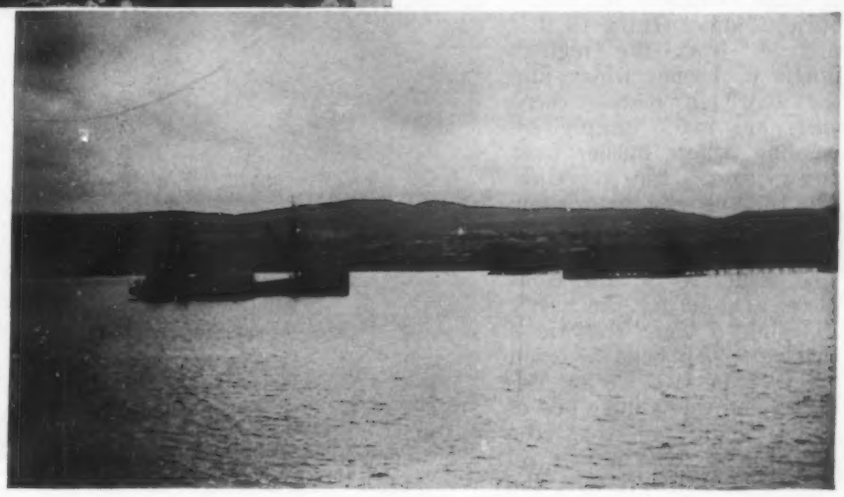
The Chilian town of Magallanes on the north bank is the capital of the territory. With a population of ten thousand, it is a queer combination of shacks and semi-modern buildings. The people, too, are a queer mixture, representing nearly every race in the world, including the savages of Patagonia. Supplies can be obtained here, but due to the fact that nothing can grow in the short season, prices are prohibitive — we paid one dollar per pound for butter. Sheep are the only exception; these are cheap and good. Perhaps the most interesting thing about Magallanes is the old museum maintained by the priests and containing many rare relics from the various Patagonian Indian tribes, as well as mounted specimens of much of the animal and bird life.

Here we took on our pilot who was to take us through the Straits and then stay with us until we reached Valparaiso. On two different days during our stay we went ashore and were forced to stay there by a heavy gale. Waves broke over the landing pier and it was impossible for the men to take the launches aboard.

Up to this point we had experienced decidedly bad weather, with a great abundance of snow, wind and sleet. Westward from Magallanes to Cape Froward the scenery and weather continued much the same; but as we rounded the Cape, both scenery and weather underwent a very sudden and striking change. Islands with massive rocks and abrupt shores, snow-capped peaks and glaciers, appeared. On some there was a small fringe of growth along the shore — bushes and small trees growing in a prone position along the ground where they had been blown by powerful gales. Although desolate, the scene grew more and more majestic. The mountains became more lofty, and in many places glaciers came nearly down to the sea. Magnificently stern, no landscape in the world is more excessively grand and savage.

The weather now became undeniably much worse. Hail, rain, snow, sleet, wind and fog succeeded each other with amazing rapidity and continuity. In fact, after rounding Cape Froward, we had not a single day of good weather until within four hundred miles of Valparaiso. On some days we did have a half-hour of semi-sunlight, but this was rare.

Ordinarily, not more than four days are required by power vessels to make the 315-mile run from Cape Virgenes, at the eastern entrance, to Cape Pillar, on the west coast. It is not advisable to run at night, but the



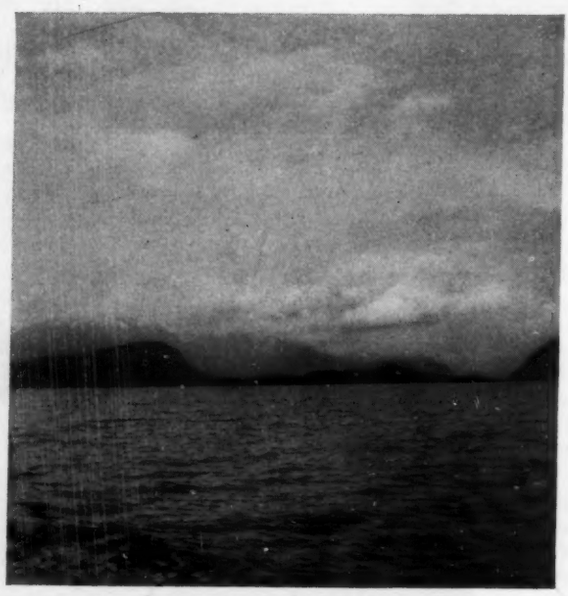
days are long in summer and a vessel may weigh anchor at 2:30 A.M., and have plenty of light until 8:30 P.M. The great difficulty in night travel is that the fog sets in suddenly and settles down so thickly that visibility practically ceases, and the great depth of the channels west of Cape Froward make it impossible, at times, to find bottom with a hook. On one such night, when we had attempted to continue, we were caught by the fog, and with the port engine turning slowly, we ran in one small circle all night. Though we happened to be in a wide part of the channel, this maneuver presented a difficult bit of navigation.

Long Reach, a rock-bound narrows in the Straits of Magellan

Not long after rounding Cape Froward we turned off from the Magellan Straits and entered Barbara Channel which leads in a southwesterly direction into Cockburn Channel and ultimately around Point Quo Vadis from where one may enter Beagle Channel. Not only along the Straits, but down among these hundreds of islands with their difficult passages, one finds the pathway strewn with wrecks of both sailing vessels and steamers — mute evidence of a last struggle with the elements.

We were looking for specimens, of course, but at the same time we were making geological investigation, looking for fossils, and, last but not least, we were trying to locate a group of the Alacalufes savages who live practically naked in this frigid and dreary wasteland.

Fishing was excellent in these deep channels, many of which were not over 200 feet in width. Here, on the western coast, the tidal fall decreases to as little as four feet, and, therefore, the currents among the island channels are not as dangerous as on the east coast. But the winds on the west coast attain much greater velocity, and frequent blows of over a hundred miles an hour are not uncommon. After many days of searching we finally located two *yurts* in a small cove east of Cape Occasion, on Cockburn Channel. Hard to distinguish from the regular jungle of bushes which line the shore in places, these *yurts* are made simply by bending a few bushes over and tying the tops together. The Indians then throw a few otter skins over the top, the sides being left open for air. The structure is now complete, a home for the hardy Alacalufe. I found that these two *yurts* had been deserted for perhaps two weeks. Behind them was a huge pile of shells, signifying that the inhabitants live mostly on mussels and fish; in fact, the absence of animals makes it imperative that they subsist on this fare, varied with penguins. A few more days of voyaging from one channel of solitude to another, and we again headed back for the Straits, while the weather continued to change from one hellish extreme to another. Surely, the man who in early days called these the "Cold and Stormy shores of Patagonia," should have been commended for his veracity.



English Reach, overhung by unbroken gray clouds

Back in the Straits, we passed the only steamer we were to see in our voyage through the channel — the Chilian vessel *Antarctica*, bound for South Georgia Island via Magallanes. She passed close on our port bow at 11:00 A.M., and how we screamed and yelled to each other from the rail! She was the first sign of civilization we had seen in many days. We communicated with her by wireless as she disappeared around the bend. That was perhaps her last message to be answered by anyone from the outside world, and little did we know that her wildly tooting whistle was echoing the last farewell of a doomed ship. All that afternoon we passed magnificent glaciers and gorgeous fiords with precipitous, bare cliffs of blue slate. About four o'clock we entered Puerto Churruca, on the north shore of Desolation Island, twelve miles west-northwest of Cape Upright, and directly across the channel from the entrance to Cripples Channel, otherwise known as Famine Reach, Danger Reach, Point Mercy, etc.

The grandeur of the inner basin of Churruca makes it seem like a huge cathedral. The snow-capped peak of Mount Hart Dyke, towering 3,500 feet near the head of the anchorage, supports an immense glacier which overhangs one of the arms of the port on the western side. Mount Campbell, to the left of Hart Dyke, and Mount Cunningham, on the east, both reach an altitude of 2,500 feet. But one would not care to stay here long, for the gloom caused by the height of the precipices, the color of the bare slate rocks, and the continual pall of cloud that rests on the peaks is most depressing.

That night the wind blew over seventy miles from the northwest. We were comparatively sheltered from the blow, but williwaws came down the mountains from every direction and we swung around our anchor seven times during the night. We hung on and hoped that the wind would not shift because the bottom was unusually rocky in Churruca,

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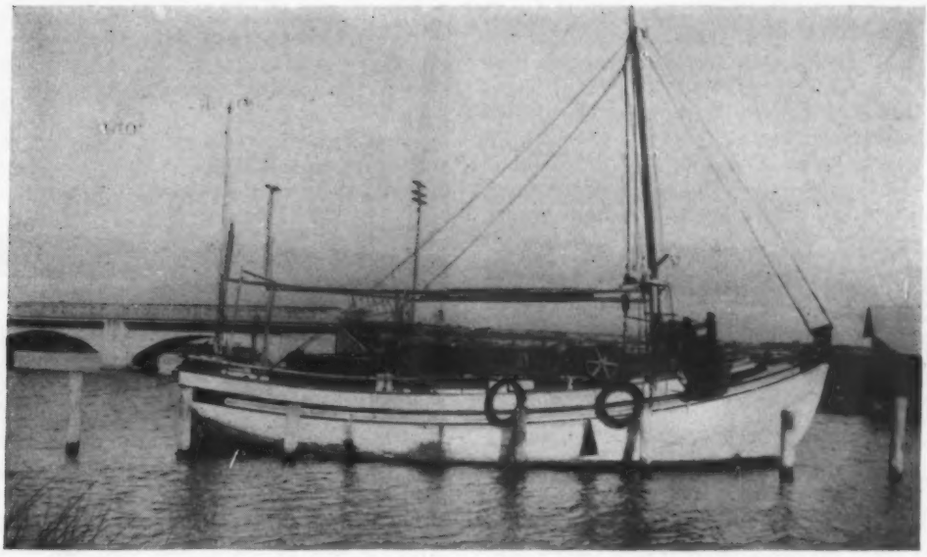


A modern Greek sponger. Note the emergency hand wheel on the air pump

The Sponge Fleet of Tarpon Springs

By TALBOT MUNDY

WE WERE looking for a sail boat, as everybody always is who loves them; not the sort they use for petting parties, but a real one, capable of sailing all around the world, with just two people for her crew and one good dog for extra company; and such are difficult boats to discover, but they are wholesome things to dream about. No legislator has discovered any way of taxing dreams. And nobody has ever built the perfect boat, so men have kept on dreaming, somehow or other working back toward first principles the more they try to escape from them.

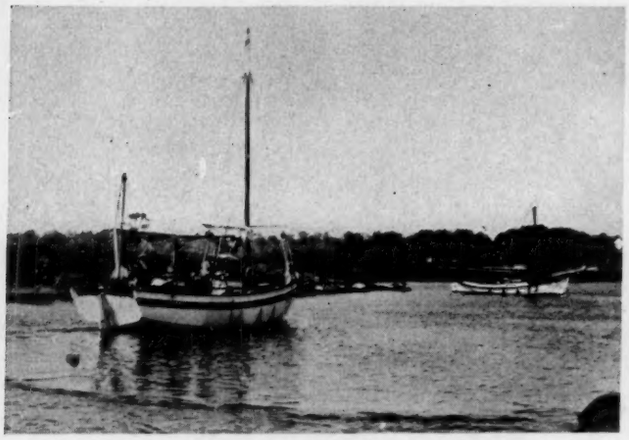
We had explored Miami and St. Petersburg — basins and docks and bayous. The Gulf is reputed to be a fisherman's paradise. It probably is. But all the fishermen apparently had gone elsewhere, or had converted their boats into power-perambulators for the winter tourist. We were looking for a sail boat that could ride out hurricanes and come home capable of doing it again — something with the sweet lines of a seagull and a bit more staunchness, possibly, than varnish. We were in no mood to be beguiled by brass or chromium or colored cushions; and we did not yearn to see a shoal draft box, all engine; so we grew discouraged until someone mentioned Tarpon Springs. It was second- or third-hand information, but it sounded good. At Tarpon Springs, we told ourselves, should be some fishing schooners, probably in need of paint and smelling to the world of fish, but capable, and owned by men of such sort, patchy in the pants, but sea-wise and indifferent to what a tourist thinks is comfort.

So on the way to Tarpon Springs we let imagination leap, until we could almost smell tarred rope and hear the creak of cordage; almost see the red sails feeling for the wind, then take it and go seaward. But the road turned left toward a "business section," past decaying "boom-built" villas and neglected subdividers' lots; and there was still no sea. However, suddenly there was a glimpse of serried and exciting masts that swayed above ramshackle roofs. The road narrowed; it passed between "Happy Jack's Cafe" and Georges Pantopoulos' boarding-house toward the Anclote River. The U. S. A. had vanished.

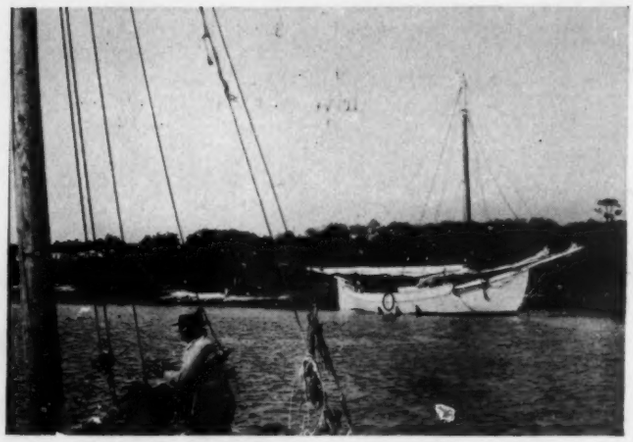
We were in Greece, apparently, blue sky and all. It might almost have been the Piraeus. Greek speech all around us — even Negroes using it; Greek signs over shop-fronts stacked with sponges and those curiously antique odds and ends that seamen consider proper to be worn on land and sea. Then, noses to a long wharf, more than a hundred Greek hulls, painted as they should be, in the candidly heroic colors — lacking nothing but the Levantine lateen rig to suggest the Bay of Corinth. And — as good as any of it — Greek irreverence for dry facts or for any sort of palpably unnecessary truth, politely, promptly and without shame squandered on us in reply to our first incautious questions.

But one soon remembers that a Greek's first thought is always to be pleasing and romantic. Truth, at best, is only relative, as every good Greek knows; so why be too particular when visitors come seeking to be entertained? The Roman poet who suggested that the Greeks are never to be trusted even when they bring gifts, cruelly maligned them, just as Kipling condemned all Russians with his "Bear that walks like a man," and the Parisian gutter-sheets lampoon the whole United States as "Uncle Shylock."

It is easy to be caught in nets of generalization. But if you scratch a Greek, and scratch him deep enough, you find a realist who loves to answer "Yes," "No," to a salty question, once he gets the drift of what you genuinely wish to understand. And that is true of all men, of whatever breed, who follow the sea — who go down to the sea and survive her. Men who know ships do not lie about them to people who love ships, though they very often lie like gypsies swapping horses to the folk who seek to prey upon them, or to the very superior folk who think that sailors are a sort of unchaste and uncomprehending animal. Nobody could be a vicious liar and design, or build, or love a sponge boat hull,



Some of them have broad sterns nowadays



Genuine "time of Christ boat"

although he may have an imagination, and may sometimes slightly mix his facts in order to convey the substance of his dreams.

"We have seen that type of hull," said we, "in the Aegean, and the Red Sea and as far away as Socotra."

"Genuine time of Christ boat," a man answered. He wore a perky American seaman's cap. His sun-tanned skin wrinkled a crow's-footy smile around eyes that had looked into storms and knew what boats are; also what they should be. "Time of Christ boat," he observed, "is all right. Not so fast and not so — what you call it? — fash'nable; but you go out, and you come home again. Some of these boats were in that hurricane — you heard of it? — that hit Miami. But the Nassau and the Cuba boats — go and look for them — and for the Key West boats, too. You will need a diving suit to find them."

That, of course, was only relatively true; and there are other reasons why the crews from Tarpon Springs and Key West speak without much praise of one another. But the trade of the man who was speaking to us is as old as the lines of the boats he was praising. And its risks are as old as the world. He was entitled to his prejudices.

Nobody knows how long ago the Greeks first hooked for sponges, or to whom they sold them, but the trade was already ancient when Cleopatra used one for her morning bath. Her sponge reached Alexandria on the deck of a boat designed exactly like the boats of Tarpon Springs. It was cured in the same way — drenched with salt water on the sun-baked deck, trodden by bare feet, dried; and that was all there was to it, except the danger and the subdivision of the profits. If you care to believe what they tell you, and there is certainly some truth in it, there is plenty of danger today, and storms, reefs, shoals are not the worst part. But the profit is better, its division simpler and the work not so laborious.

In the old days all divers were probably slaves. When men first took to diving, after having hooked for sponges with a claw on the end of a pole until the bottom yielded no more plunder, slaves were lowered into deeper water standing on a big stone. They held their noses, hurried, filled their nets with sponge with the aid of a tool like a three-pronged mattock, and were hauled up, sometimes dead and sometimes living, when their breath was finished. After months of it a man became able to work for several minutes; but it was a short life, and no picnic, although the longshore dives and drinking booths were supposed to offer compensations. Even the slave crews were encouraged to get drunk between trips; it was probably the only cheap way of avoiding constant mutiny.

Since a boat must keep in motion following the diver's movements while he works against the current, all the deck crew had to labor at the long oars against wind and tide, whereas nowadays gasolene engines do that part of it and other, even more important work. The modern diver, in his patented and almost fool-proof diving suit, receives his air — perhaps, maybe — through a tube from a gas-driven pump. There is even a patented wire cage to prevent the boat's propeller from cutting the air line or the signal line when currents carry them toward the stern or sudden squalls of wind turn the slowly moving boat from her course.

All sailors and all divers are conservative; that follows from the known and changeless perils of their calling. It was centuries before a genius invented signal lines, and probably the naked divers had to be compelled to use them, sulkily protesting that they might be fouled in them and strangled. It was longer centuries before another genius invented diving suits; and he was no Greek. But a Greek took a look at the suits and saw the virtue in them, virtue meaning profit. However, by that time the divers had long been freemen, with a sense of self-importance in the scheme of things. They could not be compelled; they had to be persuaded, which was not so easy. But the second generation yielded, and in those days air was pumped to them by strong men sweating at a geared wheel, so that the divers presently acquired a sort of fatalistic confidence. They knew the fellows at the pump would keep on turning, even though the sun burned and their backs ached — even though they might hate work and hate the diver. It was the unthinkable sin to neglect that air line. If a man drowned, it would be honest accident, the act of God, or due to the crew having passed the absolute last limit of human will to serve the crank. But somebody invented motor-driven air pumps, and then there were real ructions. It was fourteen years before a diver was persuaded to entrust his life to one of those things. Even then he did it in the teeth of opposition from his friends.

True, a man might fall dead at the pump wheel, or be careless, or forget; and motors have no memory to lose or muscles to grow weary. But a motor has no conscience and no fellow feeling; and besides, it was a new thing, and the saying is that new wine is not good in ancient bottles. Diving was always a personal business; engines are impersonal. And there was something reassuring in the thought that fellowmen were laboring

like Titans on the deck, and would not cease, until the diver's helmet reappeared, and it was unscrewed, and he breathed unrationed air again. But time and argument wore down resistance until even the last excuse went by the board: that motor-driven air pumps would reduce the number of the crew and rob a lot of strong Greeks of a livelihood. Engines need mechanics. A mechanic gets more pay than a mere laborer who sweats a wheel around. That settled it.

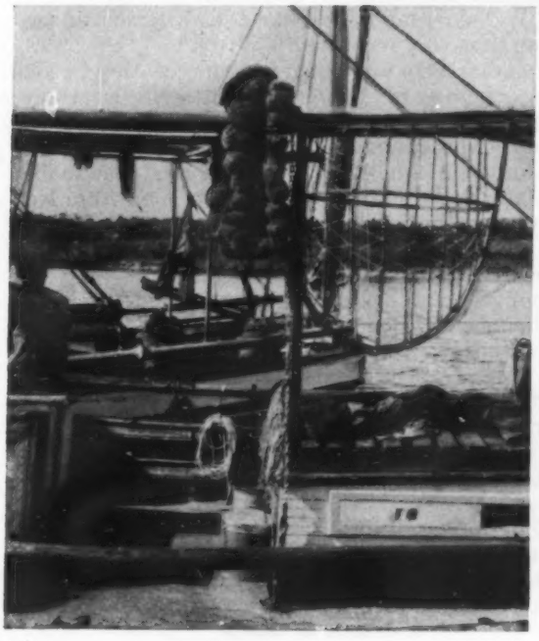
In the days before the motor-driven air pump it was nothing out of the ordinary, in the sponge fleet putting out from Tarpon Springs, for a diver a day to be brought home dead. And today, if a diver a month should be drowned at his job it would be reckoned scandalous and careless. But the divers were not without logical force on their side in resisting the change from the hand-driven pump to the thing of unreasoning gas — as we saw. There was an accident the day we watched a diver go down in the Anclote River. Sponges are profitable, and in the air there is neither loot nor harvest; but it is safer to go up in the air than down in a diving suit. One needs a good ship either way.

"All aboard for diving exhibition! Boat going right out! Only fifty cents to see the diver working!"

Business is not bad, even now; but it is not so good that sponge crews let the tourists' nickels get away untempted; so they put on a show worth ten times fifty cents, and do it ten times daily, if enough customers arrive, with a lecture in difficult English thrown in and a gasolene "voyage" of about a quarter of a mile to where the river is deep enough to cover the diver without being too deep to make him invisible as he goes through his stunts on the bottom.

They screwed on the helmet. The gasolene air pump started its monotonous refrain. The diver, net in one hand, sponge hook in the other, went in with a splash and we saw how he must lean against the current, pressing with his head against a valve inside the helmet to release accumulating air that otherwise would float him to the surface. Everything was going smoothly. It began to look as if a diver's job was not particularly dangerous or difficult, when — one hardly noticed it — something went wrong with the gasolene line. The steady thumping of the pump ceased. Somebody suddenly said "Christ!", which is an alarming word when shot through set teeth. An engineer charged past us, sputtering words that overtook each other. Someone else yelled "Throw her into neutral!" and then did it himself, while the engineer seized the emergency hand wheel and began to turn it with a kind of measured frenzy, using all his strength against a three-throw stubbornly resisting pump. It made his back crack and his muscles stand like whip cord. It was less than two minutes by the watch before they had the diver out of water and his helmet unscrewed; but that was because they had only had to haul him out of shallow water. If he had been down twenty fathoms, with the wind against the tide, and that gasolene line had grown suddenly clogged, he would have gone home feet first, as the saying is.

Sponges had been hooked, around Nassau and Key West, in depths of from five to thirty feet, for many years before the Greeks came and discovered finer grades of sponge in deeper water. Those investigators sent down "skin" divers first: that is to say, naked divers, old style, standing on a heavy stone to make descent swift. Having satisfied themselves that there was wealth below there, they soon obtained diving suits. But they had to use whatever boats they



"An ex-sailor who could lay off lines and copy anything he saw"

Left. A close-up of the wire cage which is slipped over the propeller before diving begins

Right. "We had seen such hulls in the Aegean"

could get, taking their chance of hurricanes in cranky, shoal draft, thoroughly unsuitable and badly-built hookers, such as rot now on the mud banks, and whose very name became a byword. They offset bad boats with good seamanship; and unless you are a very unobservant person you will not believe the 'longshore doctrine that a Greek is no sailor. There are no better sailors than Greeks, and none worse, if you catch the wrong one. Seamanship does not depend on nationality, but on experience and sea-sense, plus a certain sort of wholly admirable courage. However, the death toll was prodigious, and the Greeks yearned for their "time of Christ boats" — double-enders with a high prow and a sweet sheer, such as rode out gales in the Levant and brought the crews home, not so fast perhaps, but home again and loaded to the rail with sponges. They seem never to have heard of a saw mill; they went "borrowing" and begging lumber anywhere, sawing up flotsam and jetsam and any man's trees by hand on wooden "horses," to build boats to keep pace with the havoc of the storms — six rowers, one diver, two men for the pump, to each boat, plus the captain, the cook and that hopeful factotum, the boy. Then the widows and orphans to feed. But the fishing was good.

Someone sent over to Greece for a genuine boat in the end. It arrived at the port of New York on the deck of a deep-sea merchantman. It was put on a flat car to be shipped to Tarpon Springs by rail, and it arrived there after endless misadventures, "freight collect." But nobody had any money left to pay the freight. The divers spend their profits as a duck sheds water; and the crews, who earn not quite so much, accordingly spend less, but do so quite as handsomely. No local money lender — certainly no banker — would accept that 35-foot, shabby and unpainted hull as security for a loan; and it was rather natural that the railroad agent should refuse to part with it except against payment of freight. So it went to a siding and stayed there. There were local wisecracks to be borne in silence, and the local prophets gave out that the Greeks had met their Waterloo.

But lumber was still to be had for the stealing and asking. There were strong backs, rip-saws, hammers and some makeshift tools. There was a soft-eyed Greek ex-sailor who could lay off lines and copy anything he saw. So they copied that boat. They built one so exactly like her that the only noticeable difference was the new paint, home-made, too, and slapped on generously, and the sloop rig in place of the stumpy lateen with its curving long spar.

So began the boatbuilding industry of Tarpon Springs, where they can turn out racing yachts today and dare to quarrel with the fashionable experts over occultisms such as lines of entry, succoring of scarphs and so forth, things no landsman has a right to understand. All boats being, each after its own fashion, a compromise between man's needs, the ocean's laws of buoyancy, and changing conditions of trade, they have made some changes in the sponge boats since that first one took the water. Most of the boats today have broad sterns, to provide room for the larger crews, who are less scornful of their comfort than was the former generation. They all have motors in addition to their sails, and the sails are used more seldom. All the owners of the boats and crews pay royalty to the diver who invented that important but extremely simple wire cage, which they slip over the propeller before diving begins. They carry less sail than they used to do; but they can be out and home again, full loaded, in less than half the time it once took. They are beginning to use copper fastenings and bronze wire rigging. Some boats even have a radio, and most of them have patent stockless anchors. But in all essentials they are the same craft that set sail twenty centuries ago to gather sponge for Cleopatra.

The trade was always dangerous, but hardly in the way that landsmen guess, because the boats are seasweet and the crews are seamen; hurricanes are inconvenient, not deadly; every week of the year is a sponge fishing week. They work on shares. The boat gets from one to three shares and so does the diver, that depending on his skill at harvesting the sponge; the crew get a share apiece, and the captain a share and a half, or two shares — sometimes three if he is very expert. They live well and earn good money, marketing their sponges at the Sponge Exchange in Tarpon Springs, which is said to be the only exchange in the world at which all the bids are made in silence. However, we wanted to know about dangers.

"Ain't none," our informant told us, lying with an honest smile and eyes that would have made a practiced poker player envious. "Sharks? No. They used to be bad in the old skin-diving days, but now the air escaping from the diver's helmet scares 'em. Same with barracuda and with all them big fish. Octopuses? Now and then a few, but they're too small to hurt. Yes, the divers go sick with the bends; that comes of leaning forward at the work and wearing tight belts; but they have to wear 'em tight, or otherwise the air would get down to their legs and lift their legs up, so they couldn't toe their way against the current. Bends is a kind o' paralysis. Me? No, I wouldn't go down in a diving suit for fifty million. I'm a seaman. Them are good boats. If it weren't for — "

Suddenly he changed the subject and it was not for half-an hour that we could bring him back to it circuitously along the composite arc of a grand circle, as it were, by way of the Florida law that permits hooking but not diving within nine miles of the coast.

"We go as far as seventy miles offshore," he said then, "and we don't harm nobody. The boats from Nassau and from Key West are only hookers, and it's none o' their business what we do in twenty fathom. Twenty feet's their limit. But the sons of — (here he used a strictly nautical expression) — come out after us with guns, by night. And when they get in close they chuck torches aboard. Fight back? Yes, what do you take us for? Key Westers aren't the last word. But we lost two good boats that way recently."

We gathered there are dangers. And as the Greeks were always fond of what their critics describe as piracy; and since the boats are good, and ten or twelve miles out is anybody's water; and because there are at least two sides to almost any question, it seems a good idea to find out what the men from Nassau and the men from Key West have to say about it.

\+ + +

The sponge fleet, at the last count — Christus Anesti Day in the morning, which is very important, for everyone is too full of Anisette to count after that — numbered 96 bottoms. The greater number are yawl-rigged. There are a few ketches and a few sloops — mostly the 30-footers, imported from Greece.

The overall length ranges from 28 to 50 feet, and the beam ratio is high, as much as three and one-half to one in the smaller hulls and three to one in the larger. (The ratio is length overall to beam.) A typical 30-footer has the following measurements: length overall, 30 feet; length waterline, 26 feet; beam, 11 feet; draft, 3½ feet; sail area, 375 square feet.

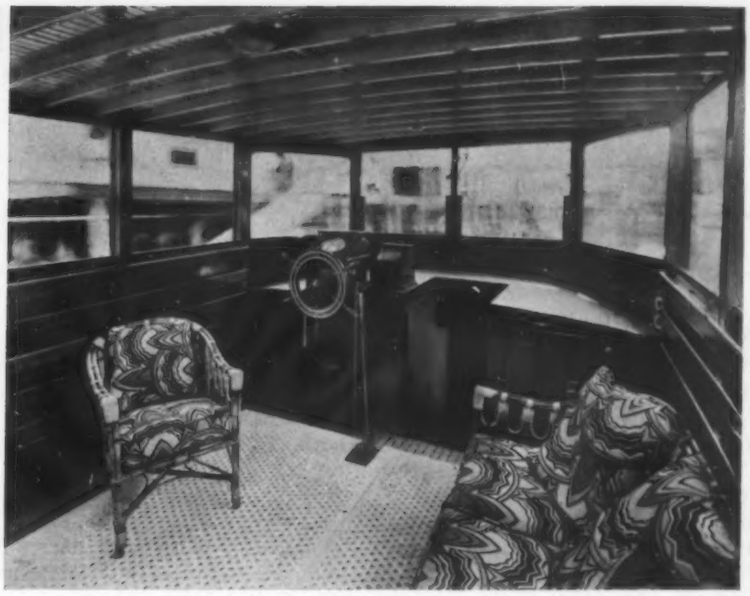
(Continued on page 86)

"Nan-C"

A Two-Cabin Cruiser, 46 Feet in Length

+ + +

Designed and built for Mr. Samuel E. Morris, of New York, by the Consolidated Shipbuilding Corporation



M. Rosenfeld

"Nan-C" is an interesting small cruiser which appeared last year. While only 46 feet in length, two double cabins have been provided, one forward of the bridge deck, and one aft. A companionway from the after cabin leads to an after cockpit. A speed of 21 miles per hour is attained through the use of a 180 h.p. Speedway gasoline motor

Westward Without the Trades

By

CAPTAIN L. SCHLIMBACH

IN RECENT years several lovers of the deep sea have sailed east to west across the big pond in small boats. The length of time taken to make these passages is discouraging to the brothers of the windjamming guild, unless they have unlimited time and are unconcerned as to the time of their arrival on the other side.

The Transatlantic races are all sailed from west to east, sliding down hill, with victory going to the boat that can run the best. Why not race the other way, east to west, for a change? The variety of wind and weather encountered and the increased necessity for good navigation and seamanship would bring out qualities in men and boats not previously exacted of them. Of course, reeling off the 3,000 miles, east to west, would take about double the time required for an eastward passage, according to the old time sailing ship rule, which was recently proved by *Jolie Brise* in making an eastward passage of 24 days and a westward passage of 48 days, in 1926. But why follow in the wake of Columbus and the square-riggers? Why go so far south, down to the 20th parallel and below it?

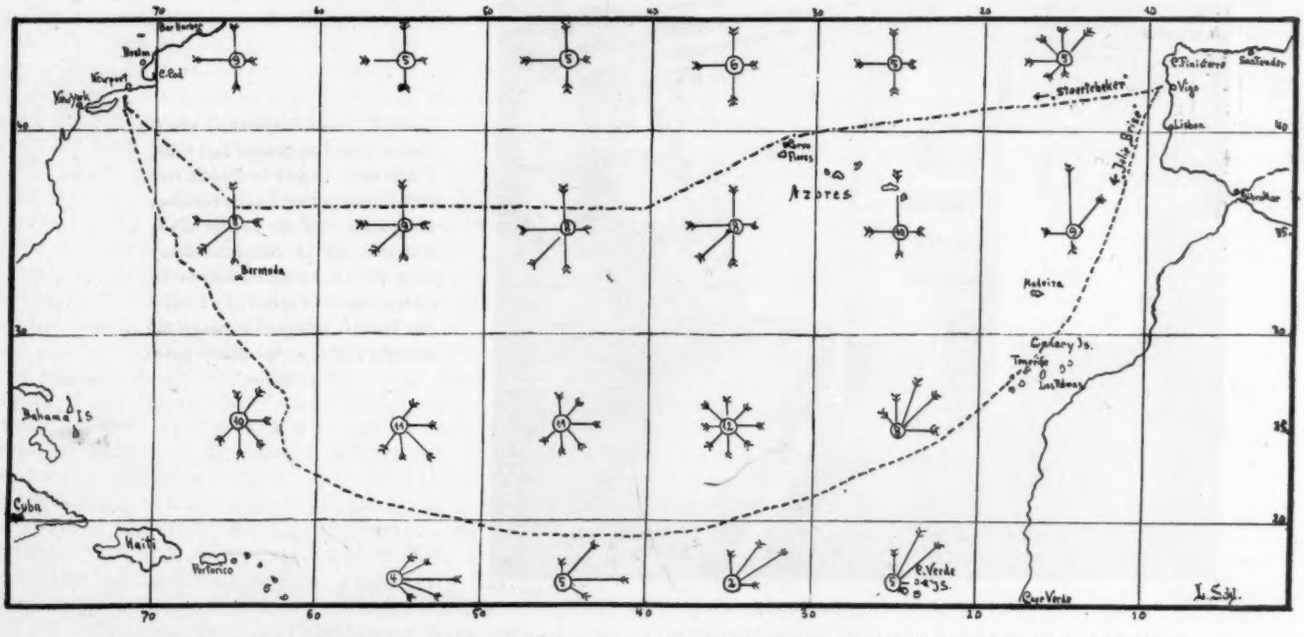
Those yachtsmen who have sailed east to west probably have assumed that the force and regularity of the northeast trades would counterbalance the 1,200 to 1,500 miles of additional distance to America by way of the trades. On this point, I differ. The additional mileage can be saved by sailing along the 35th or 36th parallel. A glance at the pilot charts (published by the U. S. Hydrographic Office) will show that along this track no higher percentage of calms is recorded than elsewhere in the North Atlantic. And such a variety of winds are indicated that working to the westward appears quite easy. Furthermore, in considering the moderately northern course in place of the southern track, one must not forget that modern hulls are far superior to windward than those of the cargo-carrying square-riggers which established the practice of taking the southern course. Modern offshore cruisers have followed the practice of taking the southern course apparently without due consideration of the fact that the best a square-rigger could do to windward in a day was in the neighborhood of 40 miles, whereas a smart ocean racer can do up to 75 miles in a day of working to windward, provided there is a lively breeze. And a breeze there is along the 36th parallel, as the pilot charts will prove. To cross the Atlantic along "36" would shorten the passage considerably, avoid the "horse latitudes," and afford greater sport.

If we compare recent passages across the Atlantic along the trade wind route, we shall find that their daily averages differ very little. The average is 100 miles, judging from the following runs:

Jolie Brise, 4,200 miles in 42 days
Carlsark, 3,800 miles in 40 days
Svaap, 3,800 miles in 38 days
Ahto, 5,200 miles in 46 days

There are other passages, about which I have no exact figures, but I believe that they would give about the same result and also prove that time is unnecessarily wasted by taking the southern course. It may be argued that the trade wind course is taken because of the fine weather in that part of the Atlantic. Fine weather? — I have seen it blowing Force seven in the trades and life on board a small boat under such circumstances is

(*Continued on page 84*)



A comparison of the trade wind track taken by "Jolie Brise" in 1926 and that taken by "Stoertebeker" in 1931 shows the latter route to be 1000 miles shorter and ten days faster

"Saoirse" braced up hard on the starboard tack

A Month in the Mediterranean

By CONOR O'BRIEN

MY WIFE and I, with the help of a friend, had sailed *Saoirse* out to Gibraltar in the fall of 1931, with a vague idea that if we found the harbor suitable we might spend the winter in that delightful part of the world. But after wasting a month trying to get a reasonably safe and comfortable berth, we came to the conclusion that Gibraltar is no place for a small yacht even in the summer, and that we should have to look for winter quarters somewhere further east.

Our crew had to leave. Well, there's a proverb that two's company and three's none; and that is especially true in a small boat on a leisurely cruise such as we planned — if the two can handle the boat. I said before we left Falmouth that she needed three hands. I said all through the voyage unprintable things about her main boom, which made the third hand necessary. Now I asked myself, not for the first time, whether it might not be possible to abolish that boom.

Previously, I had answered that without it the mainsail would probably be unworkable, and would certainly look ridiculous. Here in the Mediterranean there were so many ridiculous rigs that I didn't mind adding to their number a sail with a 21-foot gaff, a 39 foot leech, and only 15 on the foot. Whether it would work or not could be proved only by experiment. I am a born experimentalist. With some misgivings, I admit, I put a knife into the mainsail and a saw through the boom.

The two halves of it, with contributions from my boatswain's store and scrap iron locker, made an outrigger three feet over the stern, with a horse on which the sheet block travels. The lead was all right on paper, and if it wouldn't set the whole mainsail for close-hauled work, well, we'd just have to carry a reef in it. I had plenty of other canvas. The four-sided main staysail had been enlarged till it almost filled the space between the masts. That set beautifully on a wind; off the wind, I had the squaresails. The mate reckoned we could go anywhere now, without any more help.

I hadn't all her faith in the soundness of my home-made gear. We could go anywhere if we went slowly and carefully enough. But accidents might happen; and, in case of one when we were leaving Gibraltar with a crowd of critics looking on, I wanted a strong man — or two — to cover up the defects.

We didn't have much trouble shipping two stout hands, one as far as Malaga, about sixty miles, where his wife was to join him with an automobile and a comprehensive luncheon party on the following day; and the other for ten days, wherever that brought us to. We were nominally bound for Iviza, in the Balearic Islands, but it is a coasting voyage, mostly, and we could keep in touch with a railroad that would take our friend back to Gibraltar before his leave expired.

People told us that one can't fix things in this manner for a sail boat in the Mediterranean. That it is at no time navigable without a good engine. That like as not we would meet a Levanter, which is an east wind that blows very hard and lasts forever, and against which nothing but a big steamboat can make headway. Well, there'd been a Levanter, mostly, for the past two months, and it was due to stop; so we fixed our sailing day, the 28th of November. I was very proud and scornful about the Levanter and the Mediterranean generally. I reckoned the local craft were no good, and if they couldn't get to windward that was no reason why we shouldn't.

We didn't have to try. There was a nice westerly breeze that morning — just enough for an excuse to reef the mainsail. It looked a pretty close reach from our berth out between the piers, and a lee-going tide at that, but we did it with yards to spare. That altered mainsail pulled magnificently, but I was glad we didn't have to make a tack in public — I like to try out my experiments in a quiet part of the ocean in the small hours of the morning. We were no time getting down to Europa Point; then it was a dead run. We couldn't save

our daylight into Malaga anyway, so we took it easy under fore topsail. I hadn't bent the square foresail for this trip; stowing up and down the mast, it makes a bad hindrance to fancy windward work.

I was a bit shy about going into Malaga at night. It's a fine big harbor, but I didn't know how vessels moored in it, and you can't see anything from a low deck like ours against the blinding lights of a Spanish town. Also, Spain was a very new republic, and my experience of new countries is that they don't forget to show how important they are. I didn't want to run foul of regulations by anchoring in the wrong place.

Coming on night, the wind fell flat, and then we perceived what a nasty thing the Mediterranean swell is — and rejoiced that it hadn't a main boom to play pitch and toss with. There was a stiff breeze all along inshore; we could hear it roaring, but only the sea it raised reached us — and that's the worst kind of sea, I know. Then a streak of the wind got all the way. That wasn't much better, for it was bitterly cold, with rain, and so strong that we had in the topsail, flying jib, and two reefs in the mainsail in some hurry; but it did allow us to get a little nearer the land, and into rather smoother water. A real winter night. Our crew resolved very firmly to go no further than Malaga.

We might have gone in at any time of the night, instead of heaving-to outside for daylight. We could have anchored anywhere in the harbor, and taken our time over choosing a berth, for the wind was much lighter inside, and the officials didn't worry us at all. They understand yachts in Spain; it is the ideal country for cruising.

Only one of our crew left at Malaga after all. We were there for four days of calm or light east wind (with a heavy swell) and such glorious hot sun that the other recovered from his doubts and indisposition, and proposed to stay with the ship to her next port, which we proposed should be Alicante. It was too late to get him to Iviza and back in time.

We should have been in Malaga a lot longer only that a friendly power boat gave us a tow out into the prevailing calm. We found just enough wind to take us where we couldn't get back to Malaga. After a day or two our crew began to get nervous about overstaying his leave. If the ship were going to stay at sea forever he wanted her near enough to the land for him to pull ashore in the dinghy. I wanted to be near enough to work the land and sea breezes, which the Book of the Words says obtain in fine weather. So whenever any air came along from the east — it was vain to hope for it from any other quarter — we stood inshore.

It looked better. With the horizon bounded by the Moroccan Mountains, Sierra Bullones, the Rock of Gibraltar. . . . someone might say that this last could not be visible at a hundred miles. Well, it was visible. It's not unreasonable to postulate a mirage. All this suggested that we were not getting on very fast. But when we got close to the Spanish coast every mile of progress showed. One sees the biggest thing — there was the Sierra Nevada, which we were as near to as any vessel could get, and it was represented by a small patch of dirty snow. And because it was so big and near it changed its aspect pretty quickly, and flattered us, as long as we were on the starboard tack.

That tack should have taken us right along the coast; that easterly air should have merged into the sea breeze. But it didn't. I suppose the coast ranges make so straight and steep a wall that all winds must blow parallel to them. We had to make a tack. And that finished us.

There is always a swell in the Mediterranean. In my experience it always comes from some easterly point. As the water shoals on a coast like this it checks the swell and turns it in from the southeast. On the port tack we got it right ahead. We laid a steady course. The sails were full and drawing. But we were sailing the wrong way — there was no doubt about that; the scraps we threw overboard after luncheon floated out ahead of us! This was a perfectly hopeless situation. In the course of time we should actually be set ashore. We had to steer nearly S.W. before we could get way enough to take us clear. It doesn't seem to me that it's ever possible to work to windward close to a coast like this one. If one does get a slant of wind off the hills it is so strong that one risks losing sails in it. We got a safe distance off, where the wind, if any, was true with the swell, and made some progress — if it wasn't much to boast about.

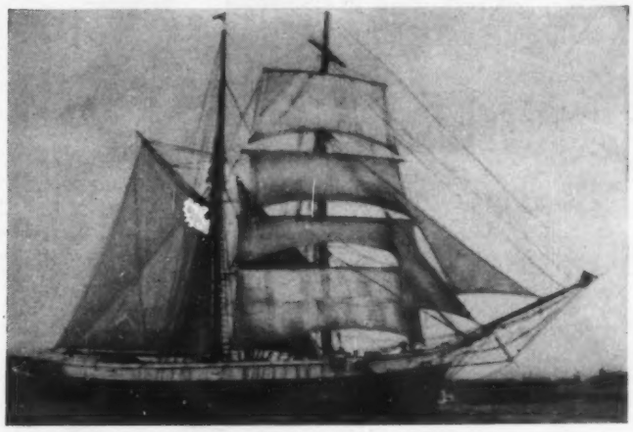
A schooner from Iviza

What about our crew and the dinghy? Well, we could close the land quickly enough if we had to; it was getting away from it that was the bother. But before we got anxious about the expiration of his leave a fine westerly breeze came along; we reckoned it would take us to Cartagena, if it didn't last all the way to Alicante.

This southeast coast of Spain consists of two great bights, and you can't guess what the weather will be on the other side of the headlands that enclose them — except that it will be different. We had the wind westerly on the south coast, but when we got round Cabo de Gata it hauled to N.W., blowing very hard. All right; it was a leading wind for Cartagena. But we should not have steered a straight course there; we should have hugged the shore. We were no more than ten miles offshore when we ran into such an awful sea that the ship became almost unmanageable. I never believed the thick salty water of the Mediterranean could get up like that.

We reckoned we'd better heave to till it went down, or we'd be doing damage. Anyway, it was another of those wintry nights, and we know which side of the deck they look best from. There was a fine coal fire going on the under side of it, and a first-class dinner cooking on the fire, and after the dinner, bunks that were quite reasonably dry. What with one luxury and another, it was well on in the morning before we got sailing again. By that time we were a hell of a long way to leeward of Cartagena. *Saoirse* draws seven feet of water, and all the winds that blow wouldn't account for the leeway she made — besides, the wind stopped blowing 'round about midnight — it was that fiendish sea. Our crew was observed making careful notes of the main sheet and its outrigger. He said that when he got a yacht she would be rigged as ours is, at any rate as regards the mainsail. I have yet to meet anyone who, having been to sea with a boomless mainsail, ever wants to see a boom again.

We struggled in towards the land again. Pleasant yachting weather, if our friend hadn't been anxious about his leave; it was fine, and very warm, as long as there was no wind. What we wanted was warmth, *and* a wind; but we weren't far enough south for that. We had a white whale for company, a poor little thing, of rather a bilious shade of white, and when he blew it sounded like the moan of a sick cow. Later we met



A Mediterranean brigantine off Cartagena

other wild fowl even more suggestive of the tropics; but they were birds of ill-omen. I never see a flight of flying fish except when there's more of a breeze than I care about. This lot were close off the entrance to Cartagena, and they came with a bitter north wind and stinging showers of hail. And if we were going into Cartagena, as our crew insisted was necessary, I wanted the wind from any other direction.

The coast range here has worn into gaps, through which that wind was coming in terrific squalls. I supposed the biggest gap, that forms the harbor of Cartagena, would have the strongest squalls in it. We stood in very cautiously towards the steep cliffs that guard it. I dislike the lee side of any hill, and some of these were a couple of thousand feet high. I wished some tow boat might come along, so that I could get all my sails in before they blew away. But we were coming in to the land very nicely, and we hadn't really enough sail set to ask for trouble. The mainsail was close-reefed, and that invaluable main staysail was doing most of the work; and if at a distance we did look rather like a razeed ketch, it was a fine rig to get to windward with, and the ship steered delightfully under it.

Well, we didn't see any signs of a tow boat, and we found we didn't want one. When you've got past those forbidding cliffs and opened up the harbor you look right through the gap into a great level plain; there is no high land to windward, and therefore no squalls. There were some calm patches, and the wind was a bit baffling; but there's no danger about working in; it is only a matter of patience.

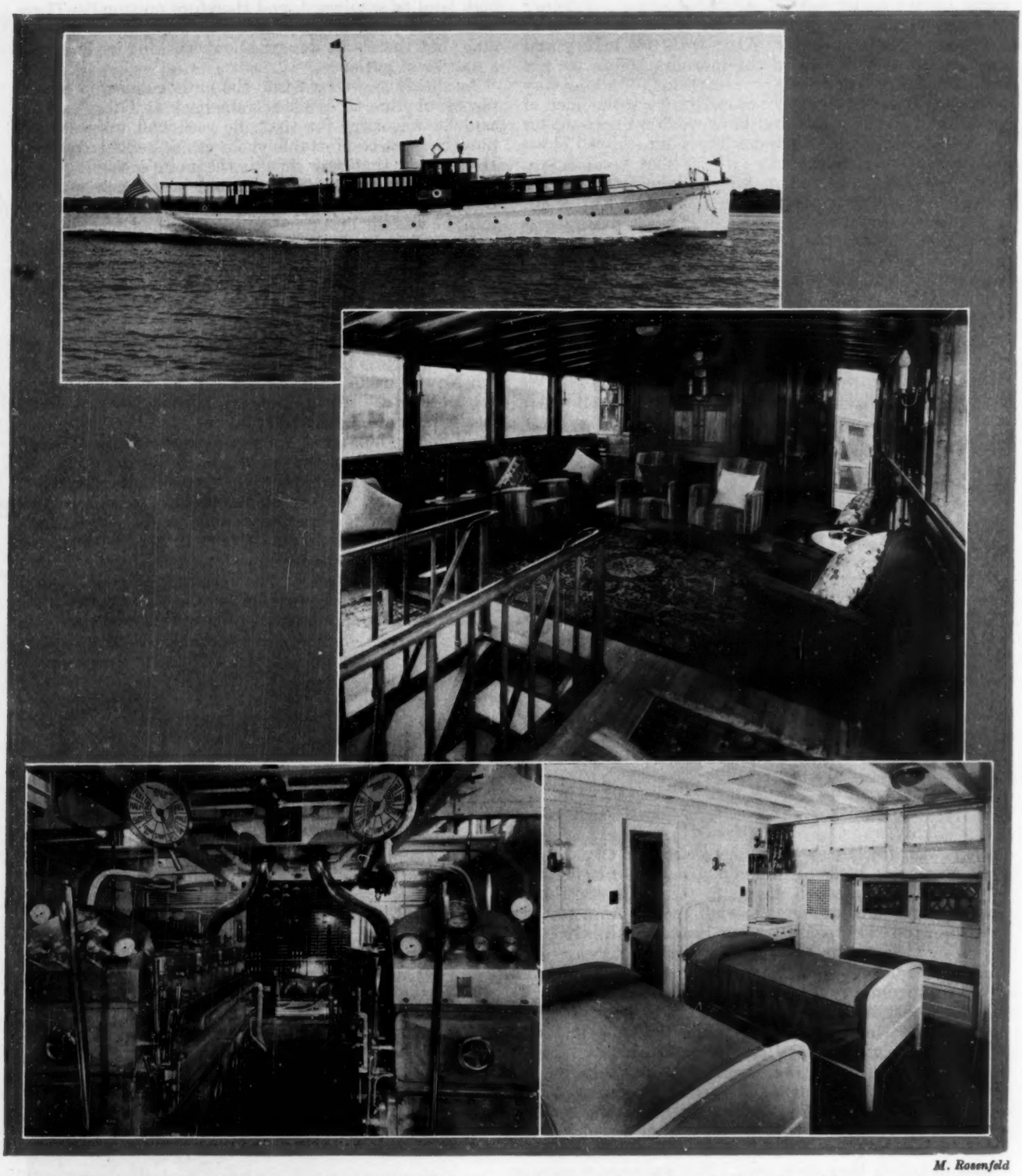
As slowly as we beat into the harbor our crew was in plenty of time to catch a train back to Gibraltar. He said he was sorry for that; he reckoned we'd showed him the most comfortable yacht cruise he had ever had. How much that was due to the mate's cooking, how much to the rig of the boat, and how much was just politeness I don't know. We were just as sorry to lose him; he was the best amateur hand we had ever shipped.

We had been six days coming from Malaga, a matter of 200 miles. There's the Mediterranean for you! — and my boasts that I averaged 100 miles a day! It wasn't quite so far on to Iviza, but as the crew was reduced to my wife and myself, we allowed as long. Time enough to spend a day or two at Cartagena, and yet get to our winter quarters before Christmas. Cartagena is a Spanish Navy yard, a center of the iron trade, and otherwise a "one-horse" town, but its harbor is marvelously beautiful — well worth a day or two. The groups of grey rocky hills that framed it were rivalled, in the artist's estimation, by the tangle of schooners, ketches and feluccas in the corner where we were anchored, all painted white, with a boot-topping of red, or, more rarely, green. Their masts and yards, tipped with white, all slanted different ways in a most intriguing manner. You can see every variety of rig here; there was a topsail schooner that actually carried stunsail booms. I tried to count the number of sheaves in the halliard blocks that hoisted a big lateen yard, and made

(*Continued on page 78*)

"Saoirse's" winter rig was unique

"Analgra," a Handsome 120-Foot Diesel Cruiser



M. Rosenfeld

"Analgra" was built for Lewis E. Pierson, of New York, by Henry B. Nevins, Inc., and designed by Charles D. Mower. Her profile, with well-proportioned deckhouses and sheer sweeping high toward the bow, gives her fine lines, combined with a powerful hull. The main living room is located in the deckhouse which, with its ample windows, permits of indoor comfort with an outdoor view. Below, the staterooms are spacious and, being finished in white, display an atmosphere of cheer. Two 8-cylinder Winton Diesels, which furnish the power, are nicely laid out in the well ventilated and lighted engine room. "Analgra" has a speed of 14 miles per hour.

"Blue Bird"

The Experience of Five Years in a Double Bilge Keel Cruiser With a Biped Rig

By

R. A. BALFOUR

IF A man deliberately forsakes an established tradition, he is usually unwise. If he continues to back his opinion, he is asking for trouble and usually finds it. If, having done these things, he escapes disaster, he should give thanks to whatever gods he serves. Instead of this he is apt to glorify an accidental omission of fate into a feeling of personal omniscience and break out into a written account.

I, who now write these fairly obvious words of wisdom, have done all these things. The result of it was, and still is, a three-ton light draft cruiser called *Blue Bird*. She is 25′ 6″ overall, with beam of 6′ 8″ and draft of 2′ 5″. A freak if ever there was one. I admit it. If doubt remains, a reference to an article in the January, 1927, issue of YACHTING will carry conviction.

Five years have passed since that article was written. *Blue Bird* has cruised around and punched some five thousand miles of assorted salt water in the same period. She has circumnavigated Great Britain, and graced the coast lines of France and Ireland.

It is sometimes a soul-searing business to read one's opinions expressed so long ago, but it is rather salutary. One lives by the grace of heaven. One learns . . . through no fault of one's own, by the brutal presentation of facts. Confession is good for the soul, they say. I hope I have now said enough to explain how and why I am writing this article. If so, I can get down to a serious attempt to set out my revised, amended and up-to-date knowledge of *Blue Bird*. But one thing I must confess. I am pretty fond of the little ship in the sense . . .

"Be to her faults a little blind,
Be to her virtues ever kind."

That is inevitable, but I shall discount it so far as I may.

Blue Bird was designed to sail on her side. I still think that was logical and scientific. At first she overdid it and we quickly discovered that it was neither amusing nor comfortable. The difficulty was caused by too much sail above and too little ballast below, and was easily cured. The eventual displacement in cruising trim became 8,000 pounds. While this tired attitude lasted, it was wet and beastly, but it did prove that the design did not blow away to leeward like a saucer, and that she would steer and go up to windward even when she was far beyond the angle her besotted designer had visualized. Why! One night I had to crawl along the topsides to reach the foredeck! But she was still under control, and the yarn is true.

This sort of fainting fit introduced us to the bilge, and

"Blue Bird," showing her biped rig, roller furling jib and folding dinghy on the stern

the bilge to the bunks, but we never became very "matey" together, feeling surprised and pained that so little water within should swish about so freely. A man-sized pump, capable of dealing with a real emergency, and passing anything short of an old sock, coupled to a flexible inlet which could draw from the deepest spot at any given moment, cured that little habit. The smaller the boat the bigger the pump, was our motto, and it does add to one's peace of mind to feel that half a ton of sea can be sent swiftly and firmly whence it came.

When *Blue Bird* sailed on her side she waved her weather flipper gaily in the breeze. Not that there was any harm in that, mind you, and it did amuse the spectators. Unkind critics had said that a beam sea breaking under that fin would capsize her. I am sorry to have to contradict, but I must say that it does not, or, more precisely, that it has not . . . so far. I have tried it and I did feel quite thrilled and flustered the first time or two until I realized that nothing happened. On the other hand, there is a certain sailing angle at which the fin is not quite in and not quite out, which, when coupled to a certain type of short, steep sea, makes the weather keel thump like a spoon bow. This is not good and calls for an increase or, more often, a reduction of sail. A hull could be designed so that this would not occur until past the usual extreme sailing angle.

The fins on *Blue Bird* actually project beyond the hull. This is a nuisance in rivers and canals or alongside a quay. We grin and bear it, but I should see that it did not happen in a new design which followed the same idea.

It did not take us long to collect data on the dinghy problem. This is simple:

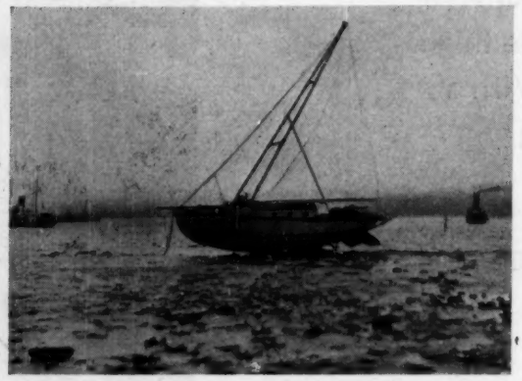
You cannot cruise without one. You cannot tow one, because it will not stay there in bad weather. You cannot carry one, because there is no place to put it on a three-tonner.

The conclusion at which I arrived after a considerable brain storm was . . . You *must* carry one! So in due course a special light dinghy was designed and built to stow upside down, nose outwards over the stern. It is so locked that it cannot lift off; length is secured by a separate watertight tail which is detachable, and the boat's measurements when assembled are 9 feet by 4 feet. It will be admitted that this is a man-sized tender for a three-tonner. In point of fact, it is three-man size for smooth water and has been a perfect godsend ever since it was fitted. We even sail the thing.

When I first took *Blue Bird* to sea I did so in faith, hope, and charity, because everything was unfinished and in a state of chaos, tolerable only to my utter inexperience. She had, of course, two rudders; but, mark my words, she had two tillers. We had a lot of fun with them and they did not last long. At sea they were not bad. The leeward one was effective; the weather one just feathered itself or was lashed. The picture of a stranger trying to work both at once, handle the main sheet, and execute some intricate harbor maneuver would have made a grand subject for a humorous artist. Those were great days.

After the first year's cruises, I had a skeg fitted in front of each rudder with a bottom pintle. This was primarily to stop warps jamming the rudders, but it actually improved the steering somewhat.

In the early days *Blue Bird* suffered from too many gadgets. The passerby was apt to pause and remark: "Look at the B——y brass periscopes," pointing the while at some clutter we fondly hoped to find useful. That phase has passed and each year sees us with a clearer deck above, a more spartan cabin below, and less gear in the lockers. This is what comes of a little experience.



With her double bilge keels, "Blue Bird" takes the hard conveniently upright

The mainsail is set loose-footed and is hoisted on a jackstay between the double spars

On the other hand, I fitted a big water tank, a larger fuel tank, more small lockers and an enormous compass, on the same principle as the pump, and dictated by one or two passages of one hundred miles or so between landfalls. The general arrangement below has withstood the test of time, and the absence of a central mast makes the forecastle accessible and useful instead of a mere dog kennel. We have lived aboard with three men and their gear for three weeks at a time. On the whole, a crew of two is better; still, this shows what can be done.

I believe I have covered most of the drawbacks, and some of the advantages of this form of hull have been indicated already. *Blue Bird* undoubtedly possesses the usual and well-known assets which accompany light draft. If that were all there would be little more to say. She goes further, however. *Blue Bird* takes the ground quite upright, and this has given us many a quiet night in some sheltered corner.

When sailing hard, *Blue Bird* increases her draft by a few inches. This action is the exact opposite of that of the normal hull. Incidentally, it is one of the basic reasons behind her performance. This unusual feature has another advantage. If she is sailed onto a mud bank, she can be sailed off again. It is necessary only to bring her upright by coming into the wind, jibing, or in extreme cases, taking sail off to reduce her draft. Then *off* she comes, to the astonishment of the spectators.

I suppose I must mention speed. I hate to do it, but, after all, no one is compelled to believe me, though I can lay my hand on my heart and swear that to the best of my knowledge and belief I cannot tell a lie, or words to that effect. *Blue Bird* once ran down the Firth of Clyde covering 70 sea miles in 10 hours and 10 minutes. This gives an average speed of 6.27 knots, exclusive of tide, which was slightly favorable. This speed is just over the theoretical maximum possible for her water line length. People have asked me, "Is that a hydroplane?" In the light of this performance, I ought to answer, "Yes; sometimes."

The great surprise is the steering. A casual glance at the design would indicate that she might be somewhat wild on the helm, with short lateral plane, shallow draft, and no center keel. Actually, her steering is astonishing. She will steer herself at sea for hours. The record, I remember, was eight and one-quarter hours. That was on the wind, without a hand being laid on sheet or helm. I have known her to find her own way for an hour or more with the wind abaft the beam. She will heave to quite well, and, if she has made me nervous when running in a dangerous sea, I think anyone with experience will admit that there are times when no three-tonner can leave the helmsman free from care. There are sound reasons for this performance in the theory of the design, as anyone may discover, but I, even I, have been agreeably surprised by her performance in this direction.

All this was in motion. At anchor, it was another story. There was a good deal of her above water and not much below. The windage of the mast was forward of the center of the lateral plane. The result may be imagined. She sheered about, giving her crew a panoramic view of the district. The habit did not make for

comfort or security. It has been cured by an alteration of the rig. This can be described as a separate part of the endeavor.

I had reached a certain point, almost of finality in design. I had *Blue Bird*, and I thought she was wonderful, and even other people began to admit that she went better than she looked, so there might be something in the design, after all. Yet I was not satisfied. It was madness, but I could not help it.

The "here we go, there we go," motion at sea annoyed me. The sheering bothered me, and I could not reef down as far as I wanted at times. I concluded that the rig and the hull should be a perfect partnership. I had a weird hull and a fairly orthodox rig. I felt that they did not agree as well as they might have. So I made six different rigs and tried them out. Most of them were smashed; some of them were nightmares, worthy of a seaman's wildest indiscretions. Some of them were tried on dinghies; some on *Blue Bird* herself.

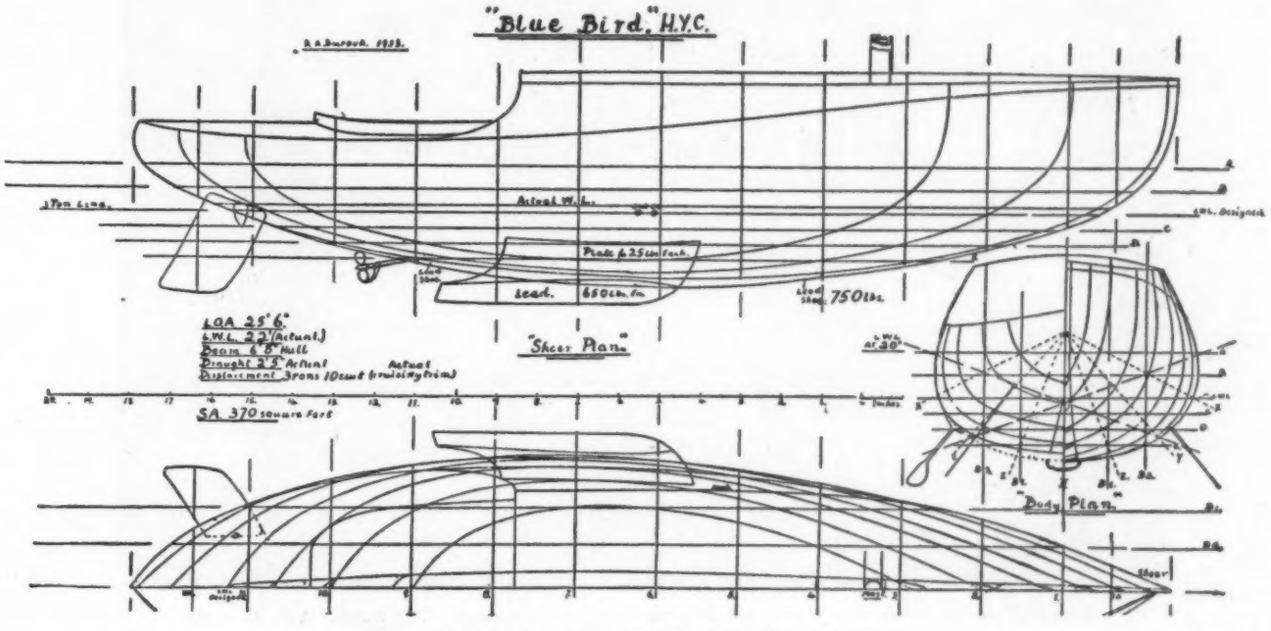
The guiding principle was a sail plan that would *lift her*, particularly in bad weather. Additional requirements were: Efficiency on the wind with a small sail area. Possibility of setting light extra canvas off the wind and the ability to reef right down without so shifting the centers of effort that balance would be lost. At the same time, I wanted a mast that could be lowered safely in a seaway to avoid the effect of its windage and weight.

"Blue Bird" has proved an able and handy cruising boat, having circumnavigated Great Britain

The mast is double and practically self-staying. The mainsail is really like a big foresail, with a loose foot on a boom and the luff running on hanks up a jackstay. The reefs are fan-shaped, with the deeper end at the leech of the mainsail, and the mast rakes aft progressively as the reefs come down. This increases the lifting effect and keeps the centers in balance. It is important to emphasize that the details of this rig must be carefully worked out, and unless the design is right there may be trouble in a seaway. That was what worried us, until we found out how to make it right.

What have I gained with this rig, in addition to the points already noted? It is simpler and safer than the old one. There are no dangerous runners, the one backstay being sufficient and needing no attention in a jibe. The most important improvement is in *Blue Bird's* behavior in a seaway. Once snugged down under her new rig, she is far easier and drier. She does not ship half as much water as she did under the original rig.

Possibly, it is a slower rig in smooth waters and light winds. That is to be expected, as the working area was 370 square feet with the old rig and is now 300, but for sea cruising she is just as fast. Our average speed along our course for one thousand miles is exactly the same since the change as it was originally, four knots exactly, and that may be taken as the significant figure for *Blue Bird*. At the same time, we are far more comfortable.



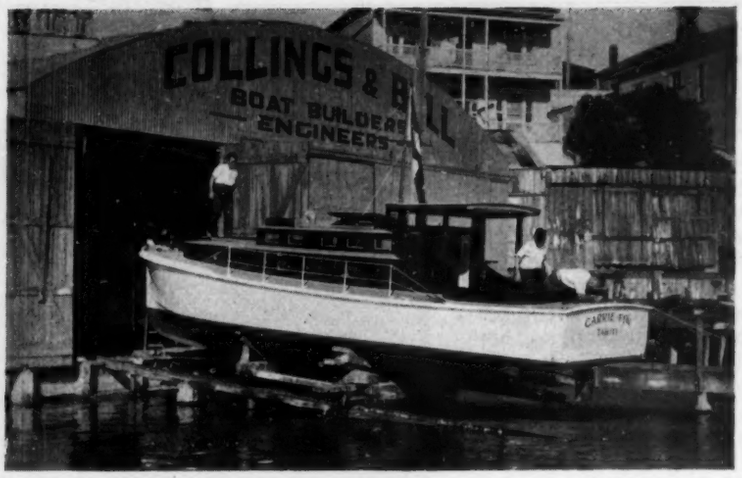
Lines and body plan, showing the location of the "flippers"

"Carrie-Fin"

A Cosmopolitan Fishing Launch

By

EASTHAM GUILD



The "Carrie-Fin" was designed for fishing in the waters of Tahiti

FOR three years or more I had been turning over in my mind and drawing plans for the ideal fishing boat. As most of my fishing is done in Tahitian waters, on the open sea, the requirements were exacting; yet I felt that what would be a good boat for those waters would prove equally satisfactory for fishing in any waters that require a sturdy, able boat of more than average speed. Stability, also, has to be considered in a boat for fishing in waters that may be rough, and this has been achieved by the designers in the form of the underwater section.

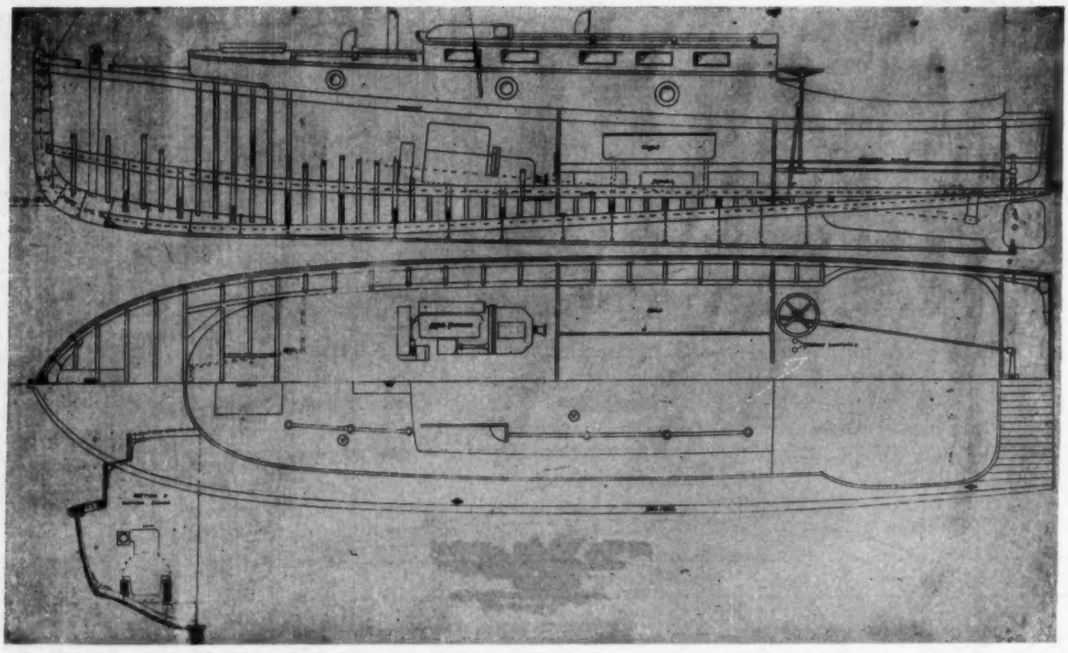
Believing that this boat is unusual enough to interest anyone who wants a good fishing boat, I am showing her plans and giving a brief description of her unique points. She is indeed a cosmopolitan craft, for she was designed and built in Auckland, New Zealand, by Collings and Bell, is powered with American Red Wing motors, with American equipment, and is used in and about Papeete.

I had always heard much about the seaworthiness of New Zealand boats, especially those of the North Island. There, for years, they have been constructing fast, sturdy boats for the whaling stations, and aside from the demand for speedy launches of this type, New Zealand's irregular shore line makes an appeal to everyone who lives there to own a boat of some kind. And so, through the dictates of pleasure and commerce, combined with the necessity for bucking rough seas, the boatbuilders have developed a high standard of workmanship.

New Zealand forests offer a fine building material in their kauri trees. The kauri is a pine that grows to enormous size, with a straight trunk reaching upwards from 60 to 80 feet, without a branch. The gum of these trees forms the basis of the finest varnishes. It is a slow-growing tree, taking nearly a thousand years to mature. The timber from these trees is white, silky in quality, free from all defects, and is obtainable in lengths up to 60 feet. The New Zealand builders generally use this for planking, keel and deadwood. On my launch the deck fittings are of teak from Siam, and the cabin trim is of mahogany, from British Honduras.

The *Carrie-Fin*, as the boat was named, is 36 feet in length, with a beam of 8 feet 9 inches, and she has a concave-convex "V" bottom, an original design of the

(Continued on page 82)



The hull design shows many unusual features. The concave-convex "V" bottom tends to make the boat steadier in rough water

A Portable Ice Yacht

By

J. L. FOSTER

INTER days, when sail boats, cruisers, speed boats, and outboards are laid up because the water has become too hard for them to push through it, the outdoors is just as beautiful, and the air sweeter. To utilize some of the wind that then goes to waste, this small ice yacht has been designed. It will carry two persons, and is capable of good speed with the right conditions of ice surface and wind strength.

Big ice yachts are suitable only for large lakes and broad rivers, with thick ice, but there are many small lakes and ponds where one can have a lot of fun. Also, an ice boat is a sociable craft; a large party can be invited to share the sport. In these days of motor cars, many lakes, ponds and rivers are within easy reach, and this boat was planned to be easily carried on a trailer. The bowsprit and rudder can be unshipped and, with the mast and sails in one package, lashed to the hull and to the trailer.

As the plans show, this boat is built with side boards. For a boat as small as this, the construction shown is by far the most desirable; the very slight increase in weight is an advantage. The type of construction usual with large boats — a heavy center-timber or keel, with a small oval cockpit on top near the after end, and stayed by steel wire ropes to the runner plank — is entirely unsuitable for a little boat. Also, in this type the mast is forward of the runner plank, set up on the keel on a metal stub, the socket being in the heel of the mast, and it is practically impossible for one person to set up the mast alone. In this design, the mast bench supports the mast when stepped, and one man can put the boat on the ice, rig her up, and stow her after the day's sailing. A blessing!

For small boats I have found a properly cut and rigged lug sail to be more effective than either a gaff sail or a jib-header, and simpler — no mast hoops or track, as with the former, or sail track on the back of a very tall mast, as with the latter. A shorter mast, even, than one required with a gaff sail, will spread a like area, and I have never known either of these rigs to pass me to windward. The yard of the lug does not sag to leeward as much as a gaff when on a wind, part of the wind pressure being forward of the mast.

The iron shoes are made and fastened to the runners in a way which I designed myself and have found entirely effective. After many seasons' use — often on rough ice on the Delaware River — they were as tightly in place, and as perfect as when first made. An ironworker can make these cheaply, and there is no difficulty in attaching them. The usual method with large boats is to cast the shoes with bolt holes in the tops, which are tapped for the threads of bolts which come through the runner and are screwed into the holes in the casting. Few amateurs can bore those holes true, as they must be to get good results.

The construction of this boat is simple, and anyone able to do carpentry work will meet with no difficulties. The boat should be built under cover, and protected from the weather. The dimensions of all materials are shown on the plans or are given in the specifications.

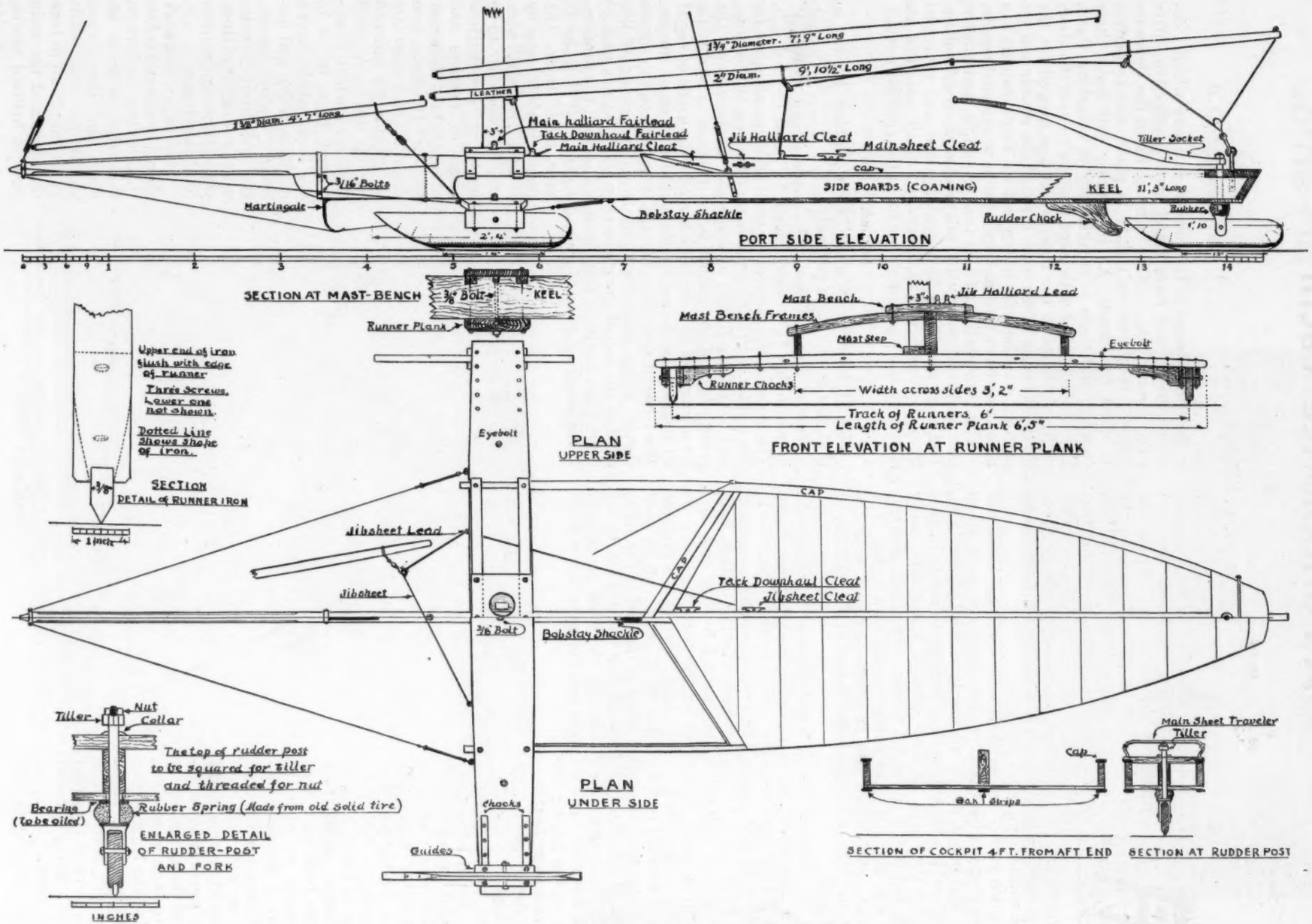
Ironwork

Get all the ironwork made before shaping timbers, so that you can fit them perfectly.

Runner Irons: These to be made from bar iron, 1″ in width by ⅜″ thick (sided ⅜″ and molded 1″). The irons for the runners are each 24″ long, and that for the rudder is 19″. Make full-size drawings of the irons, and have them forged to shape at a machine shop. The lower edges of the runner irons which bear on the ice for a length of 14″ are to be forged to an angle of about 60 degrees, as shown by the detail section of runner. The forward and after ends are to be bent to the curves shown, being hammered out to an increasing width, until at the top of the curve they are ⅛″ thick and 1″ wide. They are let in flush with the edges of the runners. These latter are to be of white oak, each 2′ 3″ long by 5″ wide, by 1″ thick. The rudder is 1′ 10″ long by 4″ by 1″. Slots ⅜″ wide and ¼″ deep are to be made in the bottom edges of runners and rudder to take the upper edges of the irons (see detail). These slots are to be gradually widened out up the curve until the edges are met. Countersunk holes to be in the irons where shown in the drawing, and fastened by stout screws. Be sure to drill holes in the oak for them after clamping the irons hard into place.

SAIL PLAN

The other ironwork should be at hand before shaping the timbers so that they will be an exact fit. The 3-eyed galvanized iron whift at the masthead to take the stays and the main and jib halliard blocks,



Construction details of 92-square-foot ice yacht designed by J. L. Foster

can be bought at a marine supply store, but the 4-eyed oblong one, to be fitted flush at the end of the bowsprit, and the square-cornered gammon iron, to be bolted to the forward end of the keel, to ship the bowsprit through, must be made to order, as must also the traveler for the main sheet, the tiller socket, rudder post, and fork for the rudder. The tiller is to be of hickory, and should curve high, as shown, so as to swing over the hips of skipper and passenger stretched out in the cockpit. The martingale, for the bobstay under the bowsprit, is to be made from an 8″ wrought angle-iron. The end of the part that is to be below is to be heated and bent to the curve shown. A groove — made with a round file — is to be filed in the lower side of the curve for the bobstay to lie in. The iron is fastened to the keel by screws.

Timbers

All timbers should be clear stuff; nothing else is good enough for an ice boat. The runners should be white oak, 1″ thick when dressed. This 1″ stuff can be used for chocks and guides as well. The other parts should be made of white pine, spruce or cedar. All dimensions on plans, or specified, are for finished parts.

Shape the runner plank first; plane the edges from 9″ wide at center to 7″ at the ends, as shown, making a clean curve. Use a stiff batten to mark it fair. The plank is 1¾″ thick. Plane down the top to the curve shown, to be 1″ thick at the ends. Round the under side, as shown in the section of mast bench, after the runner guides are fastened in place; this leaves a 1″ upright edge to the forward and after edges of the plank.

In fastening the runner guides, clamp each piece tight to the runner plank before boring holes for the bolts, taking great care to get the guides square across the plank and parallel. (If one of the edges of the plank is straight, rule lines across with a try-square at places for keel — or backbone — and guides, before narrowing the ends, or rounding the underside.) The runners need to be a close fit between the guides, but not jammed tight, as they must swing on the bolt, and must be taken off from time to time, for filing the edges of the shoes when worn too round to bite on hard ice.

Keel: To be of pine or cedar, 11′ 1″ long, 6″ wide, and 1½″ thick. Shape the keel as shown; clamp it in place across the runner plank at center, using two clamps. The center (king) bolt is then fastened, with a washer at top and bottom; the bolt-head is to be countersunk so that it does not project above the keel. Turn keel and plank over, remove one clamp and put in a 3″ lag bolt with washer under head, through the runner plank into keel; then remove the other clamp, and put in the other lag bolt.

Mast Bench Frames: To be of oak, 1½″ wide and 1″ thick. These must be steamed and bent around a form having a curve of somewhat smaller radius than shown, as they may straighten out a bit when unclamped cold from the form. It is well to bend in one piece of a length sufficient to make both frames. Fit the frames in the slots cut in the top of the keel where shown, and fasten with stout screws 3″ long, heads countersunk.

Side Boards (Called *Coaming*, at sides of cockpit): To be pine or cedar; 10′ long, 3″ wide by ⅞″ thick. Place the sides on the marks across the runner plank; clamp frames, sides, and runner plank together, and bolt. Screw all nuts on washers on the under side of plank, except for the king bolt, which fastens the keel to the runner plank, and the bolts through guides and runners, which are ⅜″ in diameter. All bolts are to be square-shanked carriage bolts ¼″ in diameter. Get them with cone heads if possible, as they make a neater looking job.

Mast Bench: To be of oak or hardwood. Hollow out the under side to fit the curve of the frames, and round the top to match; it should finish ⅞″ thick. The mast hole should be sawed out and smoothed up before fastening, as the side of the hole to port reaches nearly to the center line of the keel. The port side of mast, below the top of keel, is to be flattened to lie against the side of keel, as shown in the elevation of the runner-plank. Make the step of oak 1″ thick, and fasten to the runner plank, using screws. Finish all fastening of mast bench and sides to keel and runner plank before bending sides to curve shown.

Transom: To be of oak 1″ thick. Fasten transom to end of keel by screws 3″ long. Deeply countersink the heads and fill with wood plugs set in varnish. Be sure to make the transom wide enough to allow for the bevel of the top and bottom edges. A straight piece may be used, but the curved transom is handsomer.

Coaming (*Side Boards*): Put a rope around near the after end of the side boards and draw them into contact with the sides of the transom. Using a couple of shores, push the sides out until they make a curve as shown in the plan. Stretch a line along the keel to make sure it is straight and the transom square across it; when satisfied that it is correct, tack several strips across sides and keel to hold in place. Fasten the sides to transom by bung-head wire nails, heads driven under; then the bottom can be put on.

Cockpit Bottom: To be of pine or cedar in 6″ widths, and ½″ thick, nailed to keel and sides with 2″ wire nails, well staggered, so as not to come all in one line along the center of edge. An oak strip, as shown in the section of the cockpit, to be fastened to the keel and sides, over bottom, using screws.

Forward Coaming: To be of pine or cedar, ¾″ thick, shaped and fitted as per plans.

Cap: An oak cap, 1½″ by ½″, to be fastened to top of sides and forward coaming as shown.

Rudder Chock: To be of oak, 1″ thick and shaped as shown on plans. Fasten this by stout screws through bottom into keel. Don't fail to put on this necessary fitting; it may save the steering gear — or perhaps you — from getting smashed when jumping a crack or in rough ice.

Bowsprit: To be of pine or cedar; sided 1½″, and molded 3″ at forward end of keel. To be shaped and chamfered as shown. It is shipped through the gammon iron, and is fastened to the keel near its after end by a machine bolt of ⅜″ diameter as shown. By removing this bolt, and unhooking the stays, the bowsprit can be unshipped for carrying or stowing away.

Spars: These may be of pine, spruce, or cedar, and are better if made from grown stuff, but sawed material may be used. Get them of a size stout enough to plane out straight; a wavy mast or other spar is sloppy and spoils the appearance of the entire outfit. The mast is 12′ long from end to end, and 3″ in diameter at the mast hole. All dimensions of the other spars are given on the plans.

Rigging

Stays: All stays are to be of 3/16″ inch galvanized wire rope (not twisted wire). The two side stays on either

(*Continued on page 76*)

The Canadian 14-Foot Dinghy

A Comparison with the International 14-Footer

By C. W. BOURKE

DURING the past year much has been written regarding the relative merits in speed and design of the English International 14-foot dinghy and the Canadian (the same type is used in the States) 14-footer. After reading some of these articles, and without knowing the facts, one almost is led to believe that our dinghy is much slower in speed, and antediluvian in design, as compared to her English sister.

Mr. G. I. Pout's articles in the "Yachting World," March 11th, and in YACHTING, October, 1932, stress the outstanding features of the English dinghy. He takes for his speed comparison the times given by Mr. Arthur H. Emerick in the July issue of YACHTING. In this article Mr. Emerick says that 5½ statute miles per hour was "good average performance" for our standard gaff-rigged dinghies — a type sold all over North America.

These dinghies are built purposely for pleasure sailing, are equipped with inexpensive sails and are very seldom tuned up to the pitch of the racing dinghy. Therefore I agree with Mr. Emerick that the speed quoted for them is good — but I think it unfair of Mr. Pout to select his derby winner and compare it with our park hack as to speed.

The best time we have from Mr. Pout is that of *Caroline*, Prince of Wales Cup winner in 1931, for 12 sea miles — time 2 hours, 1 minute, which is 6.85 statute miles per hour — fast time. During the Emerson International Cup Team races, held at Rochester, N. Y., in July, 1927, two Canadian dinghies raced two American dinghies. The elapsed time of the winning dinghy in one of the races was 55 minutes, 20 seconds, for the 6 nautical miles. The four competing dinghies all finished within 1 minute, 10 seconds. The speed of the winner was approximately 7.5 statute miles — which is considerably better than *Caroline's* time.

An average taken of four of the fastest races sailed in the last couple of years works out at an approximate speed of 7 statute miles per hour, or elapsed time of 1 hour, 0 minutes, 18 seconds. This is also faster than *Caroline's* time.

It has been proved conclusively that our modern racing dinghies can easily beat the standard types designed for pleasure (as referred to by Mr. Emerick) in any kind of weather, particularly in light to moderate, with a chop of sea, which are average conditions on Lake Ontario. Moderate weather approximates 9 miles per hour; light weather, about 6 miles. As our average weather is what we term "light and moderate," our average elapsed times for 6 nautical miles are much slower than the times given above. We do, however, get quite strong winds occasionally, from any point of the compass, and it was on such occasions that our fast times were made.

At our annual L. S. S. A. Regatta on Lake Ontario it is not uncommon to see the leaders in the 14-foot dinghy class finish ahead of 16-foot dinghies and 20-foot skiffs, although the latter start at intervals of five minutes ahead of the 14-footers. The reason for this is the ability of the 14-foot dinghy in going to windward, and this is due to efficiency of rig, refinement of design, and keen racing competition. Off the wind, the longer boats, of course, are faster.

A Canadian dinghy with modern sloop rig. Note the large deck, pear-shaped mast, and the loose-footed, overlapping jib. (Above) The hull shows a hollow waterline forward, giving V-shaped section with flare at deck

The International 14-foot dinghy is carvel-built (or smooth skin) whereas the Canadian dinghy is clinker-built. On this point and this point only the International dinghy has the advantage in the appearance of the hull. Also there should be less skin resistance, since a smoother finish may be obtained. Our specifications call for clinker build, as this construction is easier to keep tight in the climatic conditions of North America — because of our very hot weather, and because our dinghies are hauled out of the water after sailing and placed in boathouses which often become as hot as drying rooms.

Mr. Pout gives the specifications for the International dinghy as 4′ 8″ minimum beam, and 1′ 9″ minimum depth amidships. The Canadian dinghy is 5′ minimum and 5′ 7½″ maximum beam. Most of the Canadian racing dinghies tend toward the maximum. The minimum depth amidships, or at the largest sectional area, is 16″. Most of our dinghies are around 18″ and the latest is 20″.

All our dinghies are decked, with a minimum width of 8″ on each side. Some are decked

(*Continued on page 80*)

Sail Plus Motor

Their Effect on Auxiliary Performance and How It May be Determined

By MILLER R. HUTCHISON, JR.

AUXILIARY yachts offer the unique possibility of using both sail and engine power simultaneously, while either may be employed separately. Other craft are restricted to one means of propulsion and the laws governing their performance are thoroughly understood. Ordinarily, the auxiliary proceeds under sail power, but there are occasions when it is expedient to employ the engine for the assistance of the sails. What happens when this is done is not quite as simple as it may appear at first glance, for the effect of each means of driving the yacht reacts upon the other. Very little information of a precise nature has been discovered in an extended search of the records, though there is much need of such data. To those who are interested in auxiliary yacht racing, in which the use of a restricted quantity of fuel is permitted, the value of precise observations of performance under these conditions — sail plus motor — cannot be overstated.

M. Rosenfeld

With sail added to power, the performance of this typical auxiliary, "Janelburn," would present an interesting problem in efficiency and economy

With the assistance of a simple set of home-made instruments, the yachtsman can obtain for himself a very accurate and valuable estimate of a yacht's performance. It is the object of this article to describe the need for such procedure, the construction and use of the necessary instruments, and the nature of the information which may be obtained through them. In the determination of engine, propeller, hull and sail performance, there will be derived a great deal of interest, amusement, and satisfaction.

The sail is an airfoil which develops "drive" and presents resistance according to its shape, the intensity of the relative (or apparent) wind, and the angle of attack which it presents to that wind. Apparent wind is the resultant of prevailing wind and the yacht's motion and course. Reference to Figure 1 illustrates this. Vectors represent the velocity and the direction of motion of the yacht and the wind. As shown at the left side (1*A*), a yacht is assumed to be close-hauled, moving with a speed of four knots in a prevailing wind of 16 knots which bears 45 degrees to the true course. Because of the movement of the yacht, the relative wind is found to bear 8½ degrees closer to the course and to have an increased velocity of three knots, as compared with the prevailing wind. The second diagram of this figure (1*B*), shows the yacht on a reach, the assumed speed being six knots in the same wind. In this case the bearing of the relative wind is found to be 69½ degrees to the course, with its intensity increased to 17½ knots because of the yacht's motion and course. Similar diagrams may be constructed for other points and conditions of sailing, with instructive results. For example, let us suppose that in the first diagram the wind suddenly drops to one-half of its theretofore steady velocity of sixteen knots. The speed of the yacht will, because of its momentum, continue almost undiminished for a time. Figure (1*C*) represents the new conditions and it can be easily discerned that the relative wind shifts toward the course by 5½ degrees, enough to cause luffing, and requires that the boat be let off a bit momentarily.

The same effect is brought about in a steady wind when engine power is used to increase the speed of the yacht. Figure (1*D*) shows the case. The former steady 16-knot wind prevails, the yacht is close-hauled on a true course bearing 45 degrees to the true wind, and by engine power the speed has been increased from four knots to six. The relative wind, instead of 19 knots, as in (1*A*), is 20¾ knots; its bearing is 33½ degrees instead of 36½ degrees. Inasmuch as this angle is a critical matter, a variation of three degrees is not to be neglected. Also, the relative wind velocity affects the "drive," and the 1¾ knots' increase represents — or should represent — a 20 per cent increase in pressure.

When the engine is used alone, its speed and that of the boat are held in definite relation through the characteristics of the propeller, the resistance of the underbody form and surface, and the output of the power plant. The propeller is chosen for good efficiency under level keel conditions. But let the sails act, and the underbody suffers a change in form due to heeling, improving its ability to pass economically through the water. Some power is derived from the wind and the boat is driven forward faster than before. This, in effect, causes the water to run away from the propeller, which must turn faster in order to develop thrust against it. Turning faster, it permits the engine to run faster, and this results in the development of greater engine power than

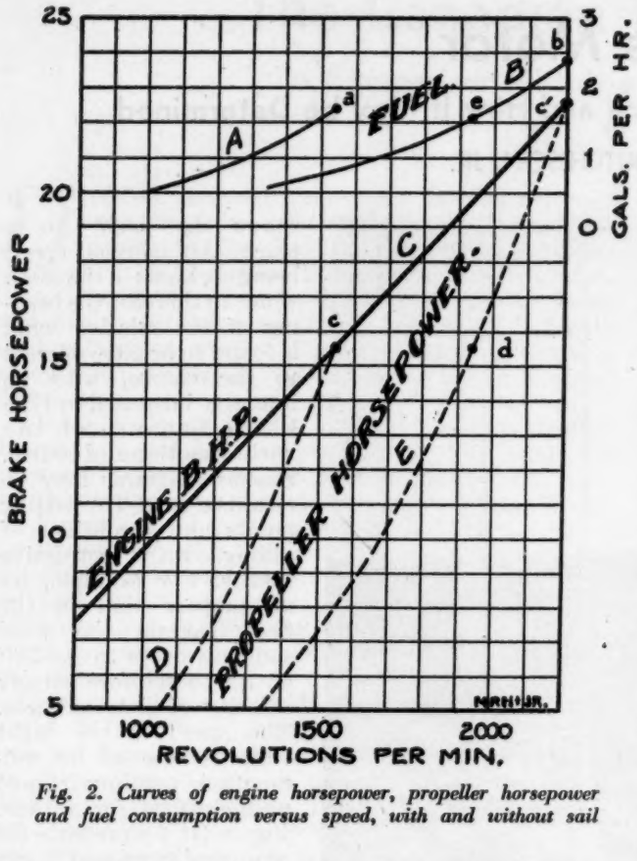


Fig. 2. Curves of engine horsepower, propeller horsepower and fuel consumption versus speed, with and without sail

before unless the throttle is closed somewhat to restrict output. Engine efficiency and fuel consumption depend upon load and speed, while propeller efficiency is a function of slip. By judicious use of engine and sails together, it may be possible to adjust matters so that each component operates to the greatest advantage, while the boat gains the advantage of the greater wind power and travels at an appreciably increased speed, on no more — and perhaps slightly less — fuel than with the engine alone at a lower speed.

Figure 2 will be helpful in visualizing what happens when the sails are assisting the engine, or *vice versa*. The engine horsepower vs. speed curve is *C*. Under normal conditions, sails furled, the propeller allows the engine to deliver a maximum power *c* at full throttle, at which time the fuel consumption is *a*. When the engine is throttled, the output is reduced and propeller horsepower is shown by points on the curve *D*. Fuel consumption is shown at corresponding points along *A*. When the sails furnish a part of the power, conditions are represented by curves *B* and *E* for a particular condition of sail plus horsepower. Now, whereas full throttle operation was necessary for the engine to develop 15½ h.p. before (at *c*), only part-throttle is required now for the same h.p. (at *d*) and fuel consumption per hour is reduced (note *a* versus *e*). If, in the first instance, propeller slip was excessive, the reduced slip in the second case will contribute to propeller efficiency and show a greater return from the propeller horsepower.

In order to *know* what is going on, instruments are indispensable. There must be means to determine accurately the fuel flow rate; accurate means for determining the yacht's speed and course with respect to the prevailing wind; means for determining engine speed in r.p.m. and, finally, some convenient means of indicating the load pulled by the engine. For the latter purpose, an indication of intake manifold vacuum will serve nicely.

The commercial instruments used for these purposes are:

Flowmeter: An instrument of the differential-pressure type, employing a venturi tube in the fuel supply system. Cannot be used when a fuel pump is employed. List price, $75.00. Gives a constant indication of rate of flow of fuel.

Marine Speedometer: A very satisfactory type for auxiliaries consists of a submerged strut, which operates

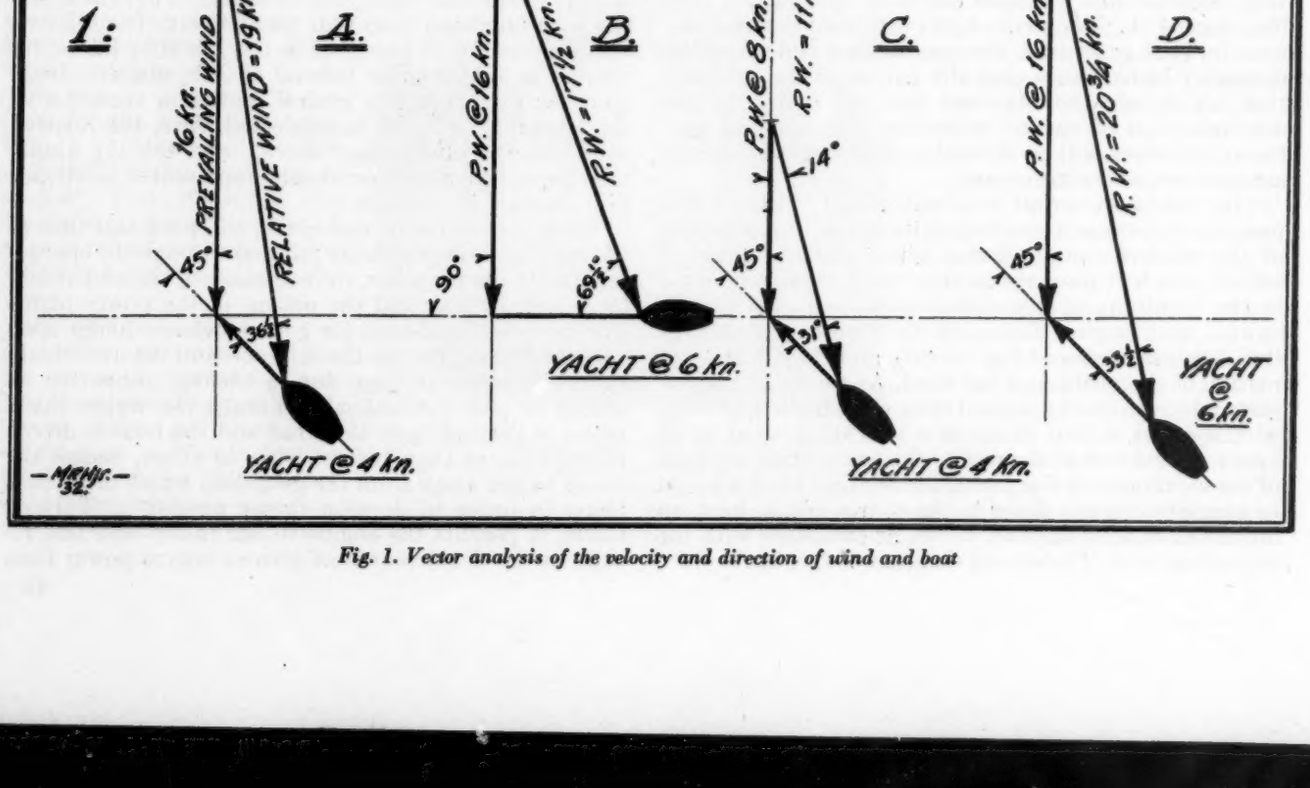


Fig. 1. Vector analysis of the velocity and direction of wind and boat

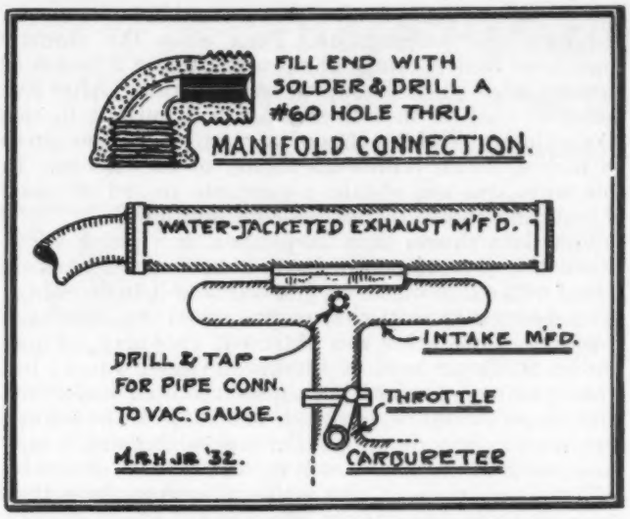


Fig. 4. Gauge connection to intake manifold

a metallic bellows. These convey to a bulkhead instrument an indication of the speed by hydraulic pressure in connecting tubes. Reported very accurate and satisfactory. List price, $115.00.

Tachometer: Similar to an automobile speedometer. Driven by engine and giving constant r.p.m. readings. Various satisfactory types, from $25.00, up.

Vacuum Gauge: A simple, Bourdon-type pressure gauge, arranged to show vacuum in inches of mercury. Very inexpensive, costing from $2.50, up.

Panel: A serviceable and attractive panel may be had for mounting the four instruments at a cost of approximately $20.00; light for same, $5.00 extra. If more elaborate instrumentation is desired, to these may be added oil temperature and pressure gauges, water outlet temperature gauge, combustion indicator, etc. The selection depends, of course, upon the character of the engine installation, larger powers requiring more careful supervision than small auxiliaries.

Substitute Apparatus: There are those who would be prevented from pursuing this interesting problem if it were not possible to avoid some of the expense of the instruments. This may be done, though somewhat more manual effort will be required in the use of substitutes than in the case of commercial instruments. However, this is not especially onerous and many will enjoy the construction and operation of the cheaper accessories.

In place of the relatively expensive flowmeter, one may contrive the apparatus shown in Figure 3. This will serve a double purpose, indicating the level of the fuel in the tank ordinarily and, when the tank supply is cut off by closing the cock manually, it provides a fuel column of known volumetric content. By using the adjustable, slidable indicator and a stop-watch, you may determine in a brief interval the quantity of fuel flowing to the carburetor at any time. The inside diameter of the glass tube will be chosen to suit the engine consumption at its maximum rate, to give time in drop between pointers of about 30 seconds. With a given glass installed, the indicator may be made with whatever distance between pointers that may be required for this timing at full throttle.

Instead of the marine speedometer, you may rely upon counting the revolutions of the taffrail log line during intervals of time, against a stop-watch. You must, of course, first determine how many revolutions of the line occur in one nautical mile of travel; then, from line r.p.m. and time, you get speed easily.

It is recommended that an engine tachometer be installed whenever possible, as it is a most valuable instrument. On the other hand, you may use a hand-type revolution counter and a stop-watch, starting the watch as you press the rubber-capped counter shaft against the exposed crankshaft end, and stopping it just when you remove the counter from contact. The instrument shows total revolutions in the interval which you have timed. From these facts you may find r.p.m. easily enough by computation.

There is no satisfactory substitute for the vacuum gauge, which costs little. In connecting it with the intake manifold, it is necessary to plug up the fitting, as shown in Figure 4, drilling a small hole through the plug. This provides damping on pressure variations and makes the indicator needle steady. Copper tubing or small-size brass pipe may be used for the connection, but it is recommended that provision be made for flexibility so that vibrations will be absorbed without damage to the connections or the instrument. The instrument should not be mounted directly on the manifold. Equipped with fluid damping, it responds to gradual pressure changes with completely satisfactory indicator steadiness.

Uses of Instruments

The first use to which these instruments may be put is that of checking up carburetor and spark adjustments. For simplicity in explaining the technique, the com-

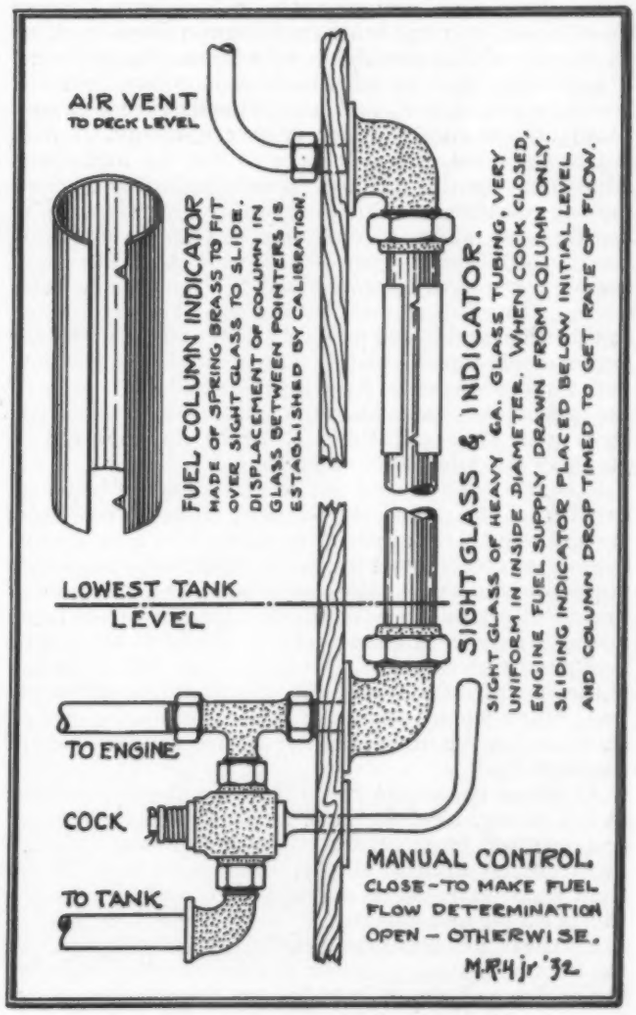

AIR VENT
TO DECK LEVEL
FUEL COLUMN INDICATOR
MADE OF SPRING BRASS TO FIT OVER SIGHT GLASS TO SLIDE. DISPLACEMENT OF COLUMN IN GLASS BETWEEN POINTERS IS ESTABLISHED BY CALIBRATION.
SIGHT GLASS & INDICATOR.
SIGHT GLASS OF HEAVY GA. GLASS TUBING, VERY UNIFORM IN INSIDE DIAMETER. WHEN COCK CLOSED, ENGINE FUEL SUPPLY DRAWN FROM COLUMN ONLY. SLIDING INDICATOR PLACED BELOW INITIAL LEVEL AND COLUMN DROP TIMED TO GET RATE OF FLOW.
LOWEST TANK LEVEL
TO ENGINE
COCK
TO TANK
MANUAL CONTROL.
CLOSE-TO MAKE FUEL FLOW DETERMINATION
OPEN - OTHERWISE.
M.R.H jr '32.

Fig. 3. Substitute apparatus for fuel flowmeter

mercial instrument installation will be assumed, from which it will be simple enough for the novice to make the proper interpretation for application to the substitute apparatus which he may be using.

To check idling mixture adjustment, warm up engine by ten minutes of running. Observe tachometer for engine speed and reset throttle stop to reduce r.p.m. to lowest value at which stable running occurs. Turn idling speed mixture screw on carburetor to leanest position, not disturbing regularity of running, with spark halfway retarded. If flowmeter reads at such low flow rates, note indication for reference. The substitute apparatus, using graduated flask and stop-watch, will serve better than the flowmeter under these conditions.

To check maximum power settings, open throttle wide, with propeller engaged to engine, and put boat on straight course in calm weather. Make tentative mixture adjustment, favoring richness, and try effect of spark advance on maximum engine revolutions per minute as indicated by tachometer. Having found best spark setting, "lean up" high-speed adjustment of carburetor, noting that flowmeter reading decreases while you do this. Carry leaning to point where engine r.p.m. just begins to fall off slightly or engine starts to knock. Perhaps by retarding spark slightly, it may be possible to "lean up" even more without the occurrence of knocking and without loss in engine speed, the advantage secured by this being indicated by the course of the flowmeter readings.

To check fuel economy at cruising speed, close throttle part way and bring engine speed down to about 85 per cent of that at which it runs for maximum power. If carburetor has an adjustable economizer, find out how to manipulate it, and with its assistance you may "lean up" the mixture for greater economy. If it is not so provided, you will have to use the high-speed adjustment for this purpose. Watch engine r.p.m. carefully as you turn down the fuel supply, and when r.p.m. has dropped off by 15 or 20 for an engine running at about 1500 (and proportionately for a slower-speed engine), you have approximated the most economical setting. The effect of spark setting should be determined at this time, and it will probably be found that a higher degree of advance is possible than at full load operation, with improved results. Note for reference the reading of the tachometer, vacuum gauge and flowmeter after you have made these adjustments, for by this information you may later duplicate conditions.

It is now time to find out what results are being secured from the previously adjusted engine. The results are measured in the speed of the yacht. You may observe the marine speedometer indication under both maximum power and cruising conditions. While it is not necessary that this be done while the engine adjustments are being made, it may be a good check to apply to the engine tachometer at the time, especially since the condition of the sea or wind may undergo change during the engine test, which would mean that the maintenance of constant engine r.p.m. would not assure maintenance of constant load.

At idling, the intake vacuum will be about 18 inches; at full power, zero. We have estimated that maximum economy will be secured at about 85 per cent of maximum engine r.p.m. but this assumption may be far from right. It must be checked. The method of doing this is simple and effective.

To check for maximum economy cruising speed, put the boat on a straight course in calm weather, warm up the engine and run it at wide-open throttle for at least five minutes before taking readings. Then read boat speed, engine r.p.m., intake vacuum and fuel flowmeter. Tabulate this information. Then close the throttle slightly so that it brings about a reading of 3 inches of vacuum after conditions have become stable. After five minutes, read all instruments again. Continue in this way at intervals of 3 inches of vacuum all the way up to 18 inches, which represents idling, or thereabouts. In this way, you will obtain a complete record of speed of boat and engine *versus* fuel consumption.

This data should then be plotted on a graph sheet. When the several points have been entered and are joined with a smooth curve, you will be able to determine by inspection at just what engine speed the maximum economy of operation was obtained. This may, or may not be at 85 per cent of maximum engine r.p.m., but when you have found it, again set the boat underway, with these conditions imposed, and recheck the adjustments previously described. Perhaps in this way it may be possible to economize still further on fuel. When readjusted, go through the series of performance tests again and plot a new curve, observing the results of any changes. At the newly discovered or confirmed maximum economy conditions, record for future reference the actual flow rate, engine speed, and intake vacuum. Yacht speed may not be maintained in a seaway later, but the performance of the engine will be assured by reproduction of these readings.

Engine Performance When Used With Sails

When the sails furnish a part of the power and cause a change in the trim of the yacht, engine performance is affected and its use affects the sails. The relations which will be found to exist are best determined by experimentation.

In a steady breeze of known intensity, set the yacht on a course of which the bearing to the wind is determined. Take data on engine performance at 3-inch intervals of vacuum, reading r.p.m. and flow rate, entering these facts with details of yacht speed. Check frequently the speed which the yacht can make with sails alone, perhaps doing this between each change of engine conditions. Alter the course slightly and repeat as often as warranted for all points of sailing. In this way, accumulate a store of complete information on the effect of wind, course, engine speed upon yacht speed and fuel consumption. Compare with performance under engine and under sail alone. Repeat tests when wind has changed to some other steady velocity. Make notes, throughout runs, of any external conditions which prevail, such as temperature of air, water, barometer, sea, etc.

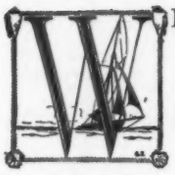
In the accumulation of data on performance some systematic arrangement to record the results will be found useful. Such forms may be ruled on stiff paper and held conveniently in a clip-board while readings are being made. Incidentally, the information given by Mr. George F. Crouch in the February and March, 1932, issues of YACHTING will be found most interesting and valuable when the data which has been taken on engine r.p.m. and yacht speed is reviewed. These two factors, when the true pitch of the wheel is known, give propeller slip, which should be compared with Mr. Crouch's results.

Because there is no more interesting yacht than the auxiliary, and since more accurate information on performance will improve its design, the author urges those who may make these tests to send in their logs of the results and observations, in order, that by compilation and study, they may be prepared for publication. If, in the selection and installation of instruments, or in making tests, questions arise, they will be gladly answered.

Those Parachute Spinnakers

What They Are, What They Do, and What They Cost

By SAMUEL WETHERILL



WHEN yachtsmen gather these days, it is not long before the conversation works around to a discussion of parachute spinnakers. How big they are, how much they cost, how hard they are to handle — how fast they make a boat go, whether dead before it or with the wind on the quarter. Arguments, pro and con, as to whether they should be restricted in area, or whether they should be prohibited entirely.

Having entered into several such discussions, and having set and taken in a parachute spinnaker just twice, I am quite convinced that a large proportion of yachtsmen have only the vaguest idea of what a parachute spinnaker is, what it does, what it costs, and what, if any, difficulties are involved in its handling. But one authentic article has been written about the "big tents," — that by Curry, in YACHTING for June, 1932. And that article dealt with parachutes used on small craft in Germany, since which time numerous parachutes have been used in American and British waters, both on racing and cruising craft, and American sailmakers have made many experiments and changes in their design and construction, while American crews have made quite a little progress in the technique of handling them. In order that yachtsmen may have a better grasp of the situation as it exists today, I am writing this article after considerable investigation of the entire matter, including several "confabs" with the sailmaking firms which have turned out most of these sails.

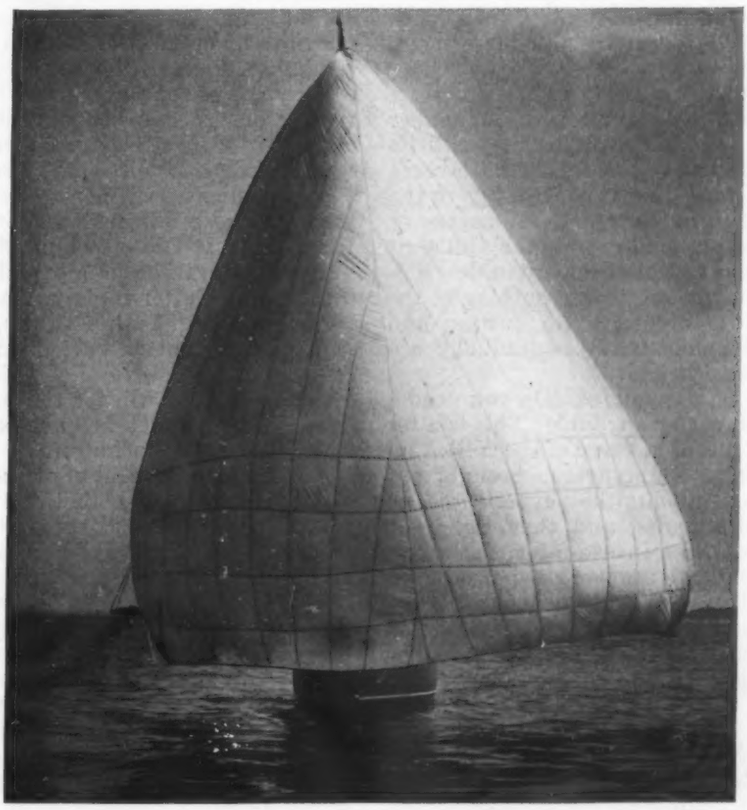
Some people have other names for such spinnakers, to begin with. Perhaps it's "double spinnaker," or "circus tent." Or "balloon spinnaker." To get started straight, in this article the word "parachute" refers to any and all of them — all spinnakers of the balloon variety, which differ in important details from the ordinary garden variety of spinnaker familiar to all of us, and which is sometimes called a "cruising spinnaker," or "normal" spinnaker. First, then, what is a "normal" spinnaker?

A normal spinnaker, the kind with which we are quite familiar, is cut in the manner shown in Sketch A. The cloths run parallel to the leach, and are the same width throughout their length — which means that all seams are parallel. Only a certain amount of flow can be worked into a sail cut in this manner, provided the length of luff, leach and foot remain unchanged.

Now, keeping the same dimensions of luff, leach and foot, cut a sail in the manner shown in Sketch B. Note that there is a seam which runs right up the center of the sail. Then note that other seams, of cloths running parallel to both leach and luff, meet at this center seam. In other words, it's now a "parachute," which, when full of wind, takes the shape shown by the dotted lines — a sail of vastly greater *area*, and of greatly increased pulling power. The projected area is the same as the area of the normal spinnaker, but the actual area is far greater. Just what this actual area amounts to is a question. Even the sailmakers admit that they are unable to measure it with any real degree of accuracy. This is a good point to remember when the talk works around to the question of limiting the area of these sails. So far, no one knows the answer.

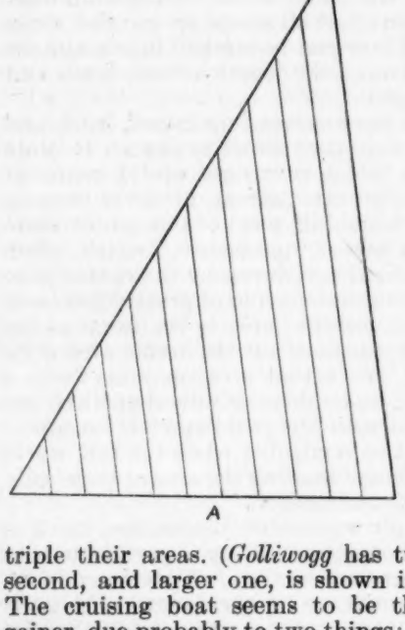
The above is simply a primitive illustration. Look at the photograph showing *Golliwogg's* parachute. All dimensions have been increased — luff, leach, and foot. Narrow strips of canvas, or tape, run across the lower section of the big kite, apparently dividing this area into squares. This is for strength. The net result is a "circus tent," one corner of which is at the masthead, another at the outboard end of the spinnaker pole, and the third sheeted close to the end of the main boom. The area and pulling power are tremendously increased. And the gain in speed is astonishing, as *Golliwogg's* competitors know.

How much greater in area are the parachutes than the normal spinnakers which they replace? The accompanying table gives some definite figures for well-known craft. The areas of the parachutes are approximate only — as close as the sailmakers can estimate them. (See table on next page.)



Find the boat! It's Ernest Ratsey's 32-foot cruising cutter "Golliwogg" hiding behind 2475 square feet of parachute spinnaker

Boat	*Normal spinnaker*	*Parachute*
Jill	405 sq. ft.	999 sq. ft.
Conewago	585 " "	1530 " "
Mouette	1440 " "	2700 " "
Dorade	775 " "	2070 " "
Golliwogg	900 " "	1467 " " and 2475 " "

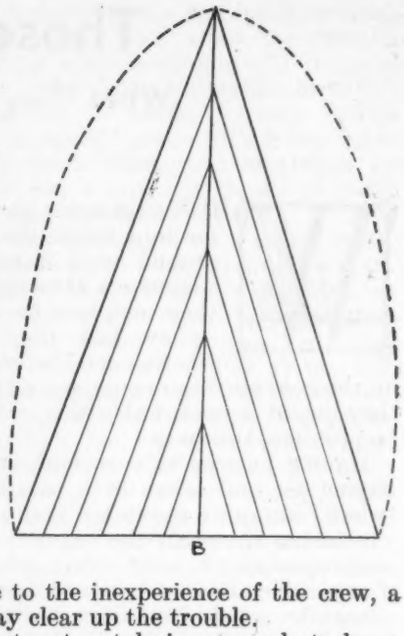


A study of this table brings to light several interesting facts. *Jill*, the smallest boat, a little more than doubles the area of her normal spinnaker, while *Mouette* doesn't quite double hers — the larger boat gains proportionately less than the small one. *Conewago*, an eight-metre, almost triples hers. These are all racing boats. *Dorade*, 52 feet long, and *Golliwogg*, 32 feet long, both cruising craft, practically triple their areas. (*Golliwogg* has two parachutes; the second, and larger one, is shown in the photograph.) The cruising boat seems to be the most consistent gainer, due probably to two things: the spinnaker poles of cruising craft are longer, and they hoist their spinnakers to the masthead — the racing craft hoist theirs only to the height of the jibstay.

Now how about the cost. As nearly as can be ascertained, a parachute which replaces a normal spinnaker will be about twice the price of the older sail — a little more or a little less, according to the area. This increase in cost is due not only to the increased area, but to the increased cost of the superfine, light material necessary to the construction of a parachute, plus the fact that the sailmakers have spent a deal of money in development work and experimentation, to say nothing of the expense of new machines necessary for cutting and sewing. As this "development cost" is gradually absorbed, prices may come down a bit.

How about handling the big fellows? Do you need a bigger crew, and do you get into trouble? This is a bit difficult to answer. At a recent meeting of the Y.R.A. of Long Island Sound, Briggs Cunningham brought out the facts that on six-metre boats they experienced no trouble with the regular crews, and that *Bob-Kat's* "double" spinnaker had been in use for two seasons. Which would seem to indicate that on six-metre boats, with competent crews, there was no trouble at all.

On the two occasions on which we set a parachute on the writer's 32-foot ketch *Tidal Wave*, we had no trouble. We borrowed *Golliwogg's* 1467-foot spinnaker, set it twice, and took it in twice, in fair breezes of wind. Three people, plus the helmsman, set it both times. It took four, plus the helmsman, to take it in — and I wouldn't care to tackle the job with a smaller crew. I don't know the area of *Tidal Wave's* normal spinnaker, but it is a pretty fair piece of duck, set on an 18-foot pole, and has a hoist of around 42 feet. One person can set it or take it in without difficulty in ordinary weather.



One trouble, noted in several instances, is that the parachute has an annoying way of collapsing, for some reason not clear to me. When it does, it makes a valiant attempt to wrap itself around the end of the bowsprit, or stem. If this tendency is inherent in the present sails, perhaps the sailmakers will find a way of eradicating the trouble. If it is due to the inexperience of the crew, a little "learning" may clear up the trouble.

Before attempting to set, or take in, a parachute, learn the proper methods of doing these things. You must rig your pole differently, set the sail differently, and take it in differently from the way you have been accustomed to doing. You must even stop it up differently — or you should, if you want it to break out properly. In other words, you must learn an entirely new technique in spinnaker handling if you adopt a parachute.

The effectiveness of a parachute spinnaker can only be appreciated by one who has tried it. Any boat, large or small, racer or cruiser, immediately takes on a new lease of life. It has been freely claimed — and the claim has not been disputed — that the Canada's Cup, the Seawanhaka Cup, and the British-American Cup were all won by the use of parachutes. The added speed is even greater on cruising boats, which are generally heavy craft, with big wetted surface, and moderate rigs. *Zaida* outran *Teragram* quite badly when she set her parachute — she couldn't stay near *Teragram* with her normal kite. *Golliwogg* outran *Anita* in the same way. *Tidal Wave* was fast falling behind the Fisher's Island sloop *Grey Goose* until she set a parachute, when she began to overhaul the latter rapidly. On a squadron run on the New York Yacht Club Cruise, from New London to Newport, the cutter *Viking* ran away from the entire cruising division, several of which were both larger and faster — another win for the parachute. I have yet to hear of a boat which has not benefited greatly in speed when she set a parachute.

There is a great deal of discussion regarding the possibility of putting a limit on the size of parachute spinnakers, or barring them altogether, because of their cost and the difficulty of handling them, both in racing and cruising boats. Some people even claim that they are positively dangerous in large craft. Adherents to the cause of the parachutes claim that it is a shame to prevent one from making his boat go faster, that we are on the verge of a new era in spinnakers — an era undreamed of a few years ago, that experience will teach us to handle them with ease, etc.

Should parachutes be barred, or restricted in size? In racing classes? In one-design classes? In races for cruising craft? Or should we let them develop for a year or two, and see what happens? That is the Parachute Puzzle Picture. What is your solution?

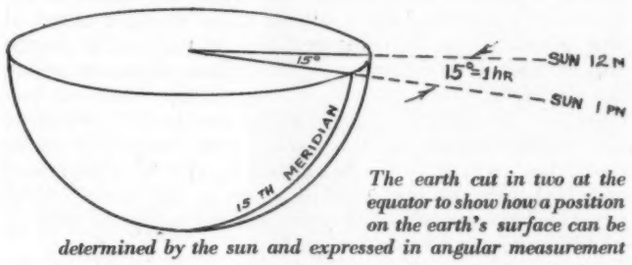
Navigation Simplified

By

CARL L. WEAGANT

IN THE November, 1931, issue of YACHTING we published an article on celestial navigation for the beginner in which the method of determining latitude was explained, with an effort to translate the bewildering mathematics of navigation into plain arithmetic. Readers who were able to master the problem of working a latitude sight with the aid of that article were, figuratively, left at sea without knowing how to determine their longitude. This article will attempt the same sort of simplification in presenting the method of determining longitude.

In essence, longitude is determined by comparing the time of day at the ship's position with the time at a fixed line on the earth's surface which runs through Greenwich, near London, whose time is given by the chronometer. In other words, if we know the Greenwich time and the ship's time we can tell how far east or west we are from Greenwich. The chronometer gives us the Greenwich time directly, and, by measuring the sun's



The earth cut in two at the equator to show how a position on the earth's surface can be determined by the sun and expressed in angular measurement

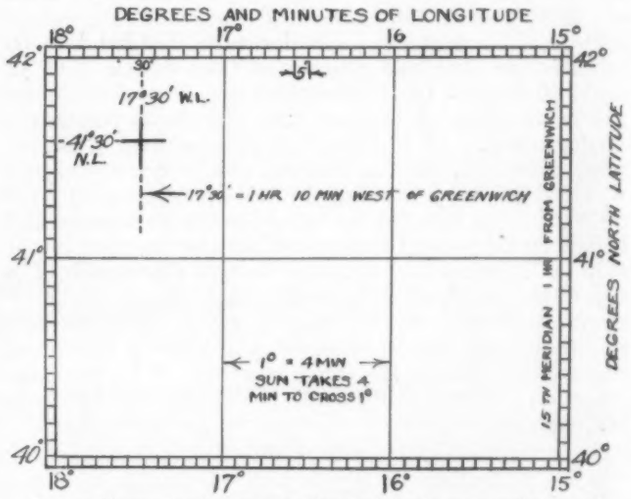
angle above the horizon with a sextant and employing a mathematical formula, we can determine the exact time of day at the ship — tell time by the sun. But why does knowing the difference in time tell us where we are on the earth's surface? This article will deal only with this elusive problem of time because it is basic and must be visualized before the next step of "telling time by the sun" is attempted. In the next issue the method of computing the time of day will be taken up by explaining only one method, but that the oldest and most fundamental, known as the time sight, which, combined with the latitude sight, is sufficient to enable a navigator to traverse the seven seas with confidence.

As we observe the sun, it appears to travel around the earth, and for the purpose of illustration this is the clearest way to visualize its motion, although the earth actually turns around in front of the sun. Like an airplane flying due west, we sight the sun coming over the eastern horizon in the morning, flying overhead at noon, and passing out of sight over the western horizon at night. If an airplane leaves London at noon, flying due west at 100 miles an hour, it is obvious that one hour later it will be 100 miles due west of London. If a man observes the airplane flying over his head at one o'clock and knows that it left London at twelve, he will know that he is 100 miles west of London. If a ship at sea sighted the plane 5 hours after it left London, the captain could figure that he was 500 miles due west of London.

The sun is like the airplane, and it makes one trip around the earth in 24 hours; it travels at a known speed. It leaves London at noon and 5 hours later passes overhead at New York. How far west of London, then, is New York? The sun makes a complete circle of 360 degrees around the earth in 24 hours; in one hour it travels 1/24th of 360 degrees, or 15 degrees an hour. If it travels 15 degrees per hour, in 5 hours it will travel 5 times 15 degrees, or 75 degrees, so we figure that New York is 75 degrees west of London. Now, how do we know when the sun left London? The chronometer tells us because it was set, with certain corrections, at twelve o'clock when the sun passed over London, or, more precisely, Greenwich.

Now suppose we are at sea and observe the sun passing overhead like the airplane. We read the chronometer at that moment and it is exactly one o'clock. In other words, the sun passed over London an hour ago and has traveled 15 degrees in that time, and, therefore, we are on the 15th meridian. But, when the sun is overhead or on the meridian, that is, it bears due south or north of us, we say it is twelve o'clock. There is a difference of time of one hour between the ship's position and London, and thus we see that the difference in time may be interpreted into difference in distance.

Now what do we mean by 15 degrees west of London, and what is a meridian of longitude? Without knowing why, we need only look on the chart, find the 15th meridian, and say that we are on that north and south line which is marked on the chart. And, if we have our latitude, we know that we are on the point where the latitude intersects the longitude. But, let us see exactly how the angular measurement of 15 degrees establishes our position on the earth's surface. Suppose our ship is on the equator and we cut the earth into halves and look down on the lower half of the earth. We see a circle, like the top of an orange which has been sliced in two. That circle can be divided into 360 degrees. The dividing is done by laying out 360 radii, like spokes of a



A chart illustrating how an angular position is converted to one of surface position by plotting from the scale on the borders of the chart

wheel, on this flat surface. When we say that we are 15 degrees due west of Greenwich we mean that the angle between the first spoke and the one on which we are located is 15 degrees. This 15 degrees establishes our position on the circumference of the wheel, or equator, because we are on the end of the spoke at the rim of the equator. The ship is like an ant crawling around an automobile tire. If the ant's destination is a position on the tire at the end of the first spoke, and, if at a certain position he is told that he is 15 degrees from his destination, he would know that he has 15 spokes to go. The term 15 degrees would establish his position on the circumference of the tire.

Now, suppose our ship is somewhere north of the equator, still 15 degrees west of London. We again slice off the top of the earth, cutting if off as far up from the equator as is the ship's position north of the equator, on its latitude. Again we have a circle around which we can measure the 15 degrees to establish our position. The circle is smaller than that at the equator; nevertheless, the 15 degrees establishes our exact position on this circle. These circles obviously become smaller as the poles are approached, the spokes of the wheel become shorter, but the angular distance between them does not change. And it takes the sun just as long to go around the small circle as it does to go around the larger circle at the equator.

Now, if we draw a line north from the equator passing through the outer end of the 15th spoke on as many wheels or circles as we wish to form by slicing the top off the earth, we shall construct the 15th meridian on the spherical surface of the earth. Every point on this meridian is 15 degrees from the first or prime meridian which runs north and south through Greenwich. The entire earth is thus subdivided into 360 meridians, and the chart carried on board ship shows these lines on which we can establish the position. But the best way to think of longitude is not as a series of lines running north and south, but as a position on the rim of the circle which is formed by slicing off the top of the earth through the ship's latitude at the time of the sight. The ship should be pictured as being so many degrees around the rim of that circle.

We have already found out why a difference of one hour between the ship's time and Greenwich time places us on the 15th meridian. Suppose there was a difference of time of one hour and 10 minutes, then where would we be? One hour, or 60 minutes of time, equals 15 degrees. One minute of time, therefore, equals 1/60th of 15 degrees. Each degree is divided into 60 minutes, so that one minute of time equals 1/60 of 15 × 60 degrees, or 15 minutes of arc. Therefore, in the above problem we can say that the ship's position is 15 degrees plus 10 × 15, or 150 minutes west of Greenwich. However, the 150 minutes can be converted into whole degrees by dividing by 60. Sixty goes into 150 twice, making two degrees to add to the 15 degrees, and leaves 30 additional minutes. Thus the position of the ship is 17 degrees 30 minutes west of Greenwich. The top of the ship's chart is divided into degrees and each degree is divided into 60 minutes, so we locate the 17th meridian, add the 30 minutes, and draw a line north and south, which is the ship's longitude. With the basic equation that one hour equals 15 degrees, and by dividing each degree into 60 minutes, we can show that:

arc	time
15° =	1^h
15′ =	1^m
1° =	4^m
1′ =	4^s

For very accurate work one minute of arc can be further divided into 60 seconds. In distinguishing between minutes and seconds of arc and time, care should be exercised to designate arc by degrees — °, minutes — ′, and seconds — ″; and time by hours — h, minutes — m, and seconds — s. Tables are given in various nautical publications which convert time into arc by inspection, which saves time, but the basis for all these subdivisions comes from the fact that 15 degrees equals one hour.

Let us examine the value or length in miles of a degree of longitude. A degree of longitude at the equator has a length of 60 nautical miles. A minute of arc, 1/60th part of a degree, is one mile in length at the equator. We have already observed that a difference of time of one minute is equivalent to a difference of 15 minutes of arc. Therefore, at the equator an error of one minute in your chronometer would put you off 15 nautical miles. This illustrates the importance of having an accurate chronometer. As we go farther north, the meridians of longitude come closer together and one minute of arc becomes less in length than a nautical mile; nevertheless a minute error in the chronometer would cause a very appreciable difference in computing the ship's position.

Why is a degree of arc at the equator equal to 60 miles and one minute of arc equal to one nautical mile? It is more correct to say that one nautical mile is equal to a minute of arc because the nautical mile is based on the length of a minute of arc at the equator. The distance around the equator was originally taken as the basis for measuring the nautical mile. Being a circle, it was divided into 360 degrees and in turn each degree was divided into 60 minutes. Therefore there are 360 × 60, or 21,600 minutes of arc around the world at the equator. The length of a minute of arc, or 1/21,600th of the circumference of the earth, was computed to be 6,080 feet which is the accepted length of a standard nautical mile. So the circumference of the earth, for all practical purposes, is 21,600 nautical miles as well as 21,600 minutes of arc.

In the foregoing we assumed that we could tell the ship's local apparent time by observing the sun's passage over the meridian at noon and calculating that moment to be exactly twelve o'clock. Unfortunately, the sun is so far away that its arc at noon is nearly flat, and with a sextant we can only determine its exact passage of the meridian within an accuracy of 2 or 3 minutes. This error of 2 or 3 minutes might make a difference of 30 to 40 miles, so the method is not practical. However, in the morning, when the sun is bearing due east, and in the afternoon, when it is bearing due west, the change of altitude is so rapid that time can be computed within an accuracy of seconds. The time sight method is employed to take these morning and afternoon sights and, if we find that the ship's time is eight o'clock and at the same instant the chronometer reads nine o'clock, we can apply the same reasoning as given heretofore — that the difference of time of one hour places the ship on the 15th meridian.

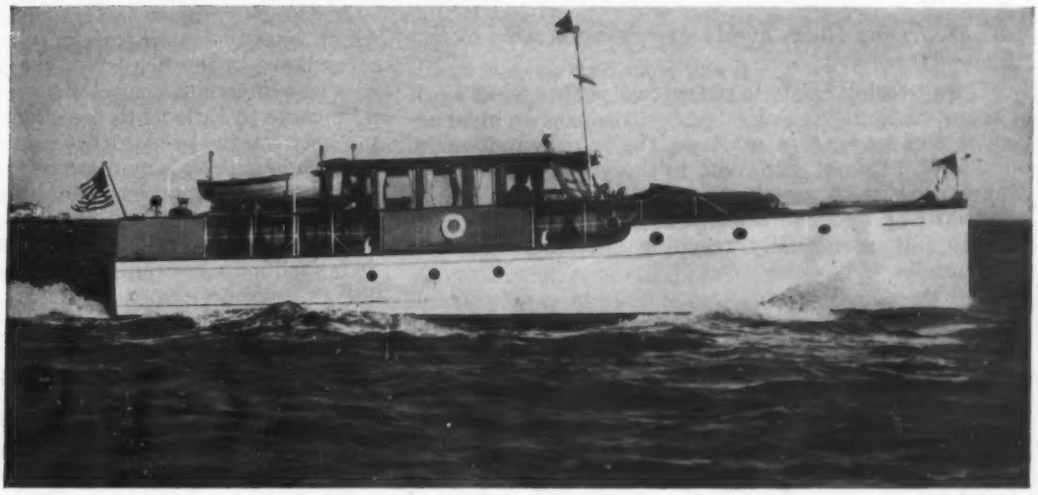
To sum up, the essence of determining longitude at sea is in determining the difference between time on the ship and at Greenwich, which difference can be converted into a position on the earth's surface by the fundamental and simple fact that it apparently takes the sun 24 hours to circumnavigate the earth. Like the airplane, the sun travels at a fixed speed and, as we know when it passes a fixed point, we can use it, like the airplane, to measure our distance from that point. In the next article we shall complete the problem of determining longitude by computing the time at sea.

Cruisers, Big and Little

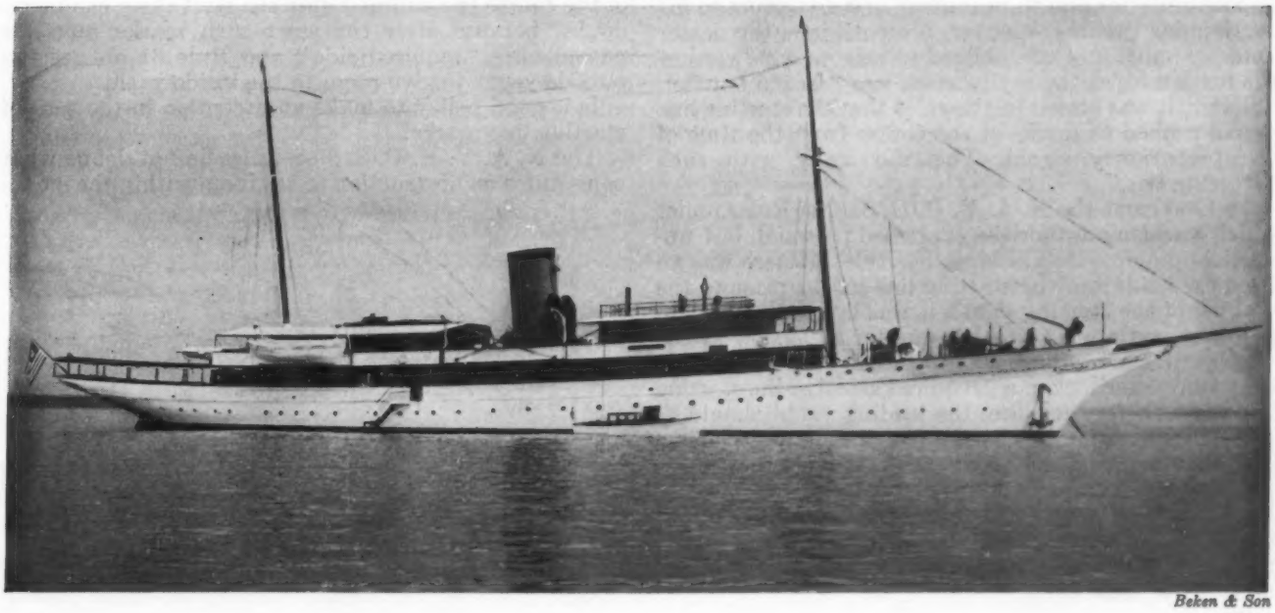
A deluxe 38-footer for Long Island Sound and coastwise cruising. "Kentucky IV," owned by Frank A. Mannen, of Larchmont. The spacious deckhouse and roomy quarters below make her ideal for summer use in northern waters or for a winter in Florida. The Matthews Company were the builders. Power is furnished by a 6-cylinder Kermath

"Tyella" is a 50-footer, designed for sturdy work along the Atlantic coast. W. Tyler Sangston is her owner. She is a single screw boat with a 6-cylinder Sterling Dolphin which pushes her along at 15 statute m.p.h. The Wheeler Shipyard designed and built her

Rosenfeld Photos



Pleasing to the eye, with grace in the sweep of every line, and well proportioned, is this Diesel cruiser, "Chalena" (below), formerly "Reveler." Owned by Charles E. F. McCann, of New York, she is from designs by Cox & Stevens, and was launched in November, 1930. She is 247 feet in length over all. "Chalena" made a European cruise last summer



Beken & Son

A Question of Policy

A Consideration of Racing Rule 34 as Affected by Rule 31

By GEORGE E. HILLS

Chairman, Race Committee, Hingham Yacht Club

MOST of the Sailing Rules have been so clearly interpreted by yachting tribunals of high standing that in any protest case it is only necessary to find the facts and apply the law. There is, however, one situation which frequently occurs and which, as far as I am aware, has not been adjudicated by the North American Yacht Racing Union. It concerns Rule 34 as affected by Rule 31. The pertinent parts of the two rules are:

Rule 34. Marks of the Course

"— The marks of the starting line are marks of the course from the making of the preparatory signal for each class, *but there is no required side until after the starting signal has been made.*" (Italics — the Author)

Rule 31. Giving Room at Marks or Obstructions to Sea Room

"If an overlap exists between two yachts when both of them, without tacking, are about to pass an obstruction to sea room, or a mark on the required side, the outside yacht must give room to the yacht in danger of fouling such mark or obstruction, whether she be the windward or leeward yacht, provided the yachts are overlapping on actually reaching such mark or obstruction."

For many years in the vicinity of Hingham it was considered that starting line marks, irrespective of size or nature — whether large or small, committee boats or small flag marks — were not obstructions to sea room within the meaning of Rule 31, and that if a skipper had timed and placed his start so perfectly that at gun-fire his bow was *on* the line at the windward mark — so close to the mark and to the line that it was a physical impossibility for him to bear away and give room to his overlapping weather-quarter competitor — the latter unlucky individual was obliged to pass to windward of the mark and, as the saying goes, was "frozen out."

Later, it was stated in the rules that the starting line marks ranked as marks of the course from the time of the preparatory signal. This did away with such "freezing out."

In 1930 came the N. A. Y. R. U. Sailing Rules under which yachting authorities expressed personal, but unofficial opinions, that because by Rule 34 there was no "required side" to the starting line marks prior to the making of the starting signal, it was legal so to "freeze out" an overlapping weather-quarter adversary at the windward mark of the starting line. The theory was that, due to the lack of a "required side" to the starting line marks before gun-fire, the leading yacht should be permitted to capitalize her perfect timing and placing, and that her competitor should have anticipated the unfortunate position in which she found herself at gun-fire. This conclusion was based on the assumption that the marks of the starting line, irrespective of size or nature, were not obstructions to sea room within the meaning of Rule 31.

The appeal protest case of *Cutty* vs. *Nona*, decided by the Council of the British Y. R. A., Case 3, in the 1932 yearbook, seems to reopen the subject on our side of the Atlantic.

The facts were as follows:

The two 8-metre yachts, overlapped, were reaching for the windward end of the line, marked by a small committee boat. Two seconds before the start *Nona* had an overlap on the committee boat; *Cutty* had not. *Cutty* hailed for room. *Nona* refused to grant it. Immediately after gun-fire *Cutty* hit the mark boat and protested under Rule 31; *Nona* protested under Rule 30 (G). The race committee, with one dissentient, upheld *Nona's* protest and disqualified *Cutty*. On appeal to the Council, the decision of the race committee was reversed and *Nona* disqualified.

At the November, 1931, meeting of the council, "at which twenty-four members were present, the largest attendance in the history of the Y. R. A.," this appeal case was further discussed. As a result, the council added a footnote to Rule 34 to the effect that during the interval between the preparatory and starting signals, *for the purpose of Rule 31*, any mark used in connection with the starting or finishing line should rank as an obstruction to sea room.

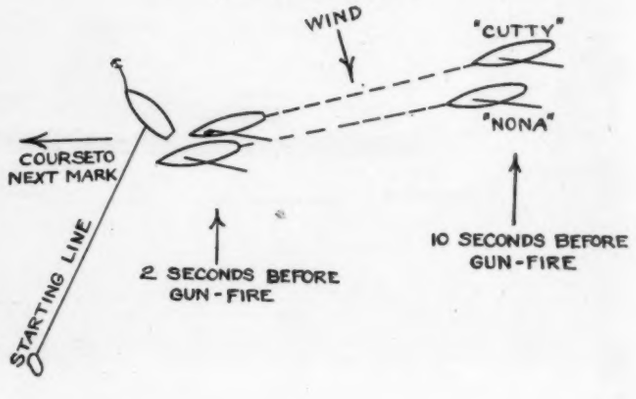
It is an old, established principle of racing that when two yachts are overlapped, the right-of-way yacht may luff or force her opponent the wrong side of a mark, or the weather side of an obstruction, with clear water on all sides, *provided* she goes with her. But *she must go with her*. She cannot luff the weather yacht the wrong side, or the one side, and then pass on the right side, or on the other side herself. If she passes on the right side herself, she must permit the non-right-of-way yacht to do likewise.

That this well-established principle applies to marks of the course encountered *after* the start there can be no doubt, because after the start such marks must be passed on a "required side" and Rule 31 obliges the outside yacht to give room to the inside yacht.

Is it good policy to make an exception in the case of starting line marks?

The N. A. Y. R. U. Sailing Rules do not define what constitutes an obstruction to sea room within the mean-

(Continued on page 86)



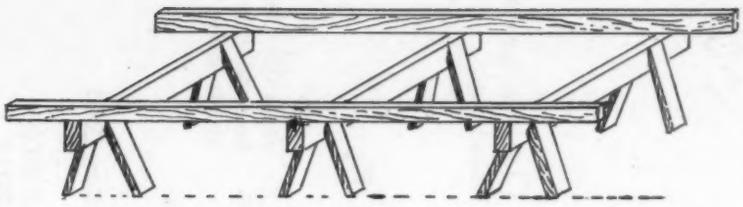


Fig. 1 Building horse

Building a 14-Foot Sailing Skiff

By VICTOR SLOCUM

THIS little boat has been designed with an optional rig of very moderate sail area, making her very safe to handle, practical for a beginner to make, and a first-class craft for a day's fishing, as well. No special saving in weight has been attempted, for you cannot get lightness and simplicity of construction at the same time. In this design, all the hard kinks have been left out. The only difference between the two hulls is in the location of the centerboard box, which is placed further forward in the cat rig. The dagger type of board has been used because the skipper can shove it down as far as he likes without disturbing the turning point, called the *c.l.r.* (center of lateral resistance).

The drawings, with dimensions marked, and the descriptive text are co-related and should be followed closely together, and well studied, before operations are begun. The important thing about building even the simplest of boats is the start; to ensure success, the start must be made in businesslike and positive fashion. By a successful boat I mean one that has turned out true and fair to line when you are ready to put her afloat.

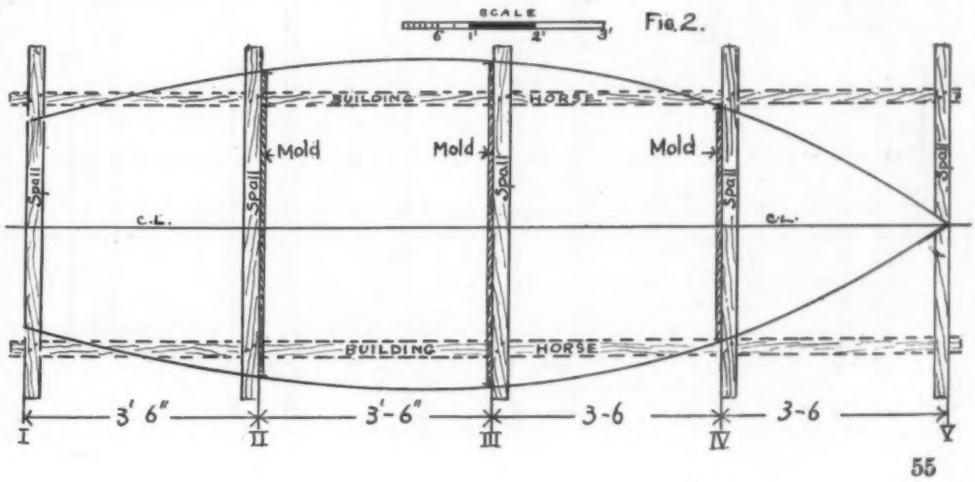
About methods of work I intend to say very little, for with few exceptions they are very similar to those which may be used in the other woodworking trades, or even at a manual training class in school. The important exception to usual woodworking procedure is the boatbuilder's method of making watertight seams. His meeting edges are "wood and wood" inside, while outside he takes off a slight chamfer from each edge of the plank for a caulking seam. This chamfer is called the "outgauge" and I shall refer to it as such. The other exception is that all meeting parts must be in place and securely clamped before any boring and fastening is done. The fastening itself, whether nail, rivet or screw, is never used to draw parts together. To do so is bad practice.

This boat is a screw-fastened job. The difference between the use of the wood screw in ordinary joiner work and in boatbuilding is that in joiner work the function of the screw is merely to hold the structure together, while in boatbuilding it is expected, in addition, to keep the water out and possibly save you a swim as well. Hence the care used on every outboard fastening, as it is called. I have covered this important point in previous articles on amateur boatbuilding in YACHTING, but it is well worth reiteration.

The wood screw has two ends, which seems to be an obvious fact, but one which some people seem to forget. One is the resisting end, which must be quite loose in the wood, and the other is the pulling end, which must fit tightly in the wood. In soft woods you need not be so particular, but since woods like oak and mahogany have little "give," the drills used for both shank and thread are selected by boring and trying in a test block of the stock to be used. Even experienced men use this method for boring off on a new job. There is no guesswork and nothing haphazard about it. They usually bore with the small drill first, to the entire depth, then with the shank drill ream out the depth of the shank, the third operation being the countersink. These are, of course, fitted to as many different hand or electric drills, eliminating loss of time in changing over. Well-equipped shops use a single drill which does all three tricks at a single wallop, and this is followed by a screw driver, also in an electric drill. But this latter is always followed up by a hand screw driver to ensure perfect setting. I must not forget to mention that a little dab of yellow soap just on the tip end of a screw is a great help when driving in hard wood, as you will be doing on this job.

It is best to build a small boat in a shop with a wooden floor and with convenient points within reach to fix the necessary braces, but it can be just as well managed in an ordinary concrete-floored garage, if need be, by making up a building horse. This need not cost an extra five-dollar bill. Get a 12-foot 2 x 4, a 12-foot 2 x 3, two 14-foot 3 x 4's, two 10-foot pieces of 1 x 6, and a few pieces of 1 x 2 "strapping," for braces. These you can get at the local lumber yard and you will be ready for the start. With the 2 x 4 and the 1 x 6, make three under horses, about four feet long, and place them six feet apart in the place selected for your job. Over these nail the two 3 x 4's, and see that they are parallel, level and square. Fig. 1 will give you an idea of what is wanted. Some diagonal braces (for which the 1" x 2" is intended) are nailed from the corners on the outside horses, but I have omitted them from the sketch for the sake of clearness.

Consult Fig. 2 and then lay off Sections I, II, III, IV



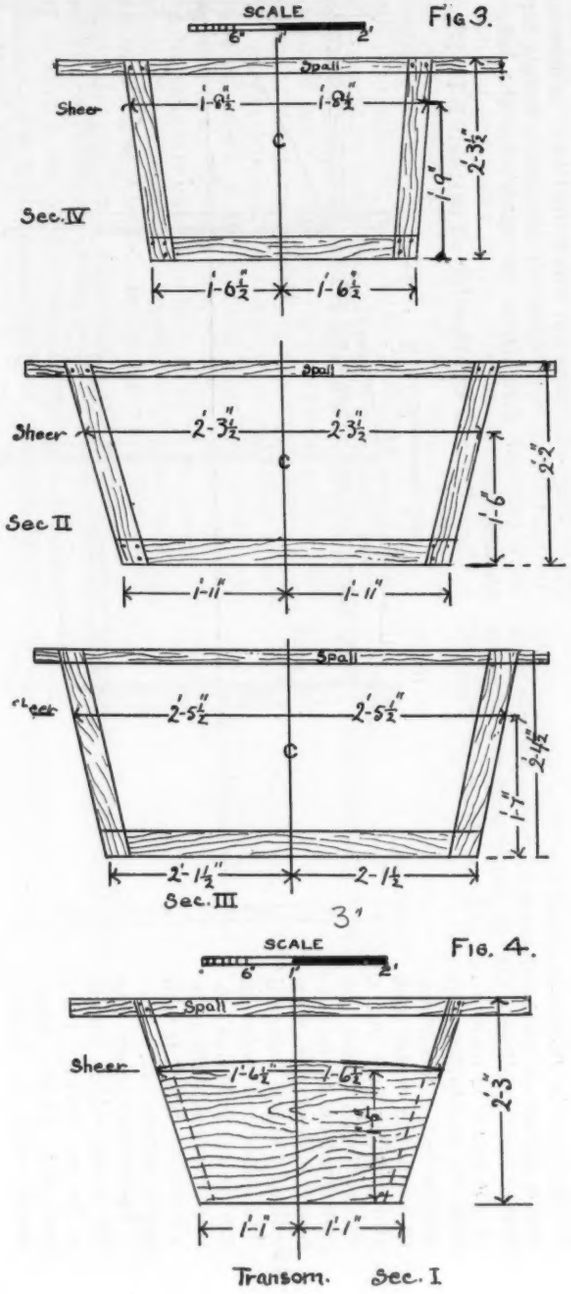


Fig. 3.

Fig. 4.

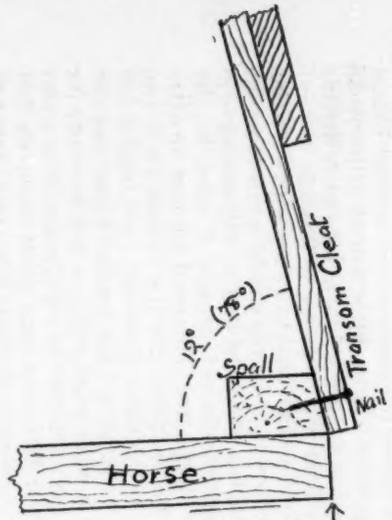


Fig. 5 Sec. I

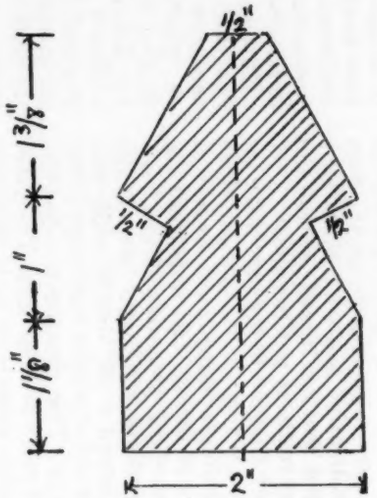


Fig. 6. SECTION OF STEM

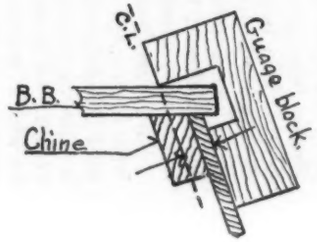
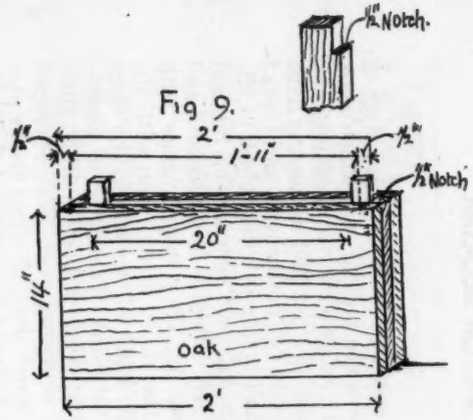


Fig. 8.



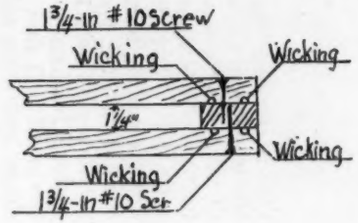
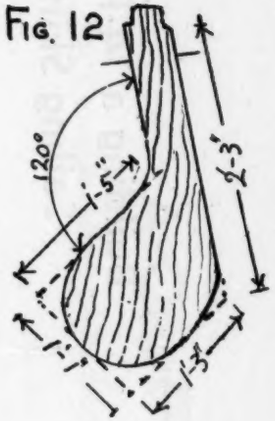
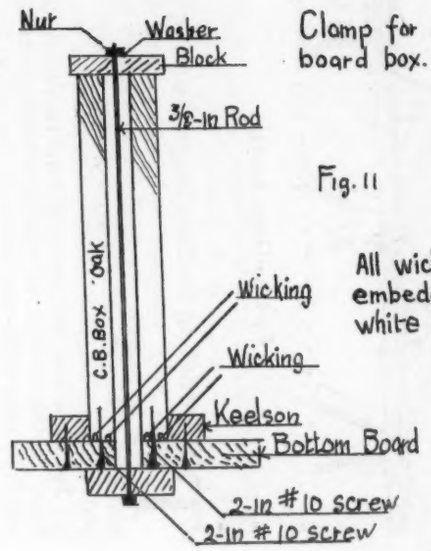


Fig. 10

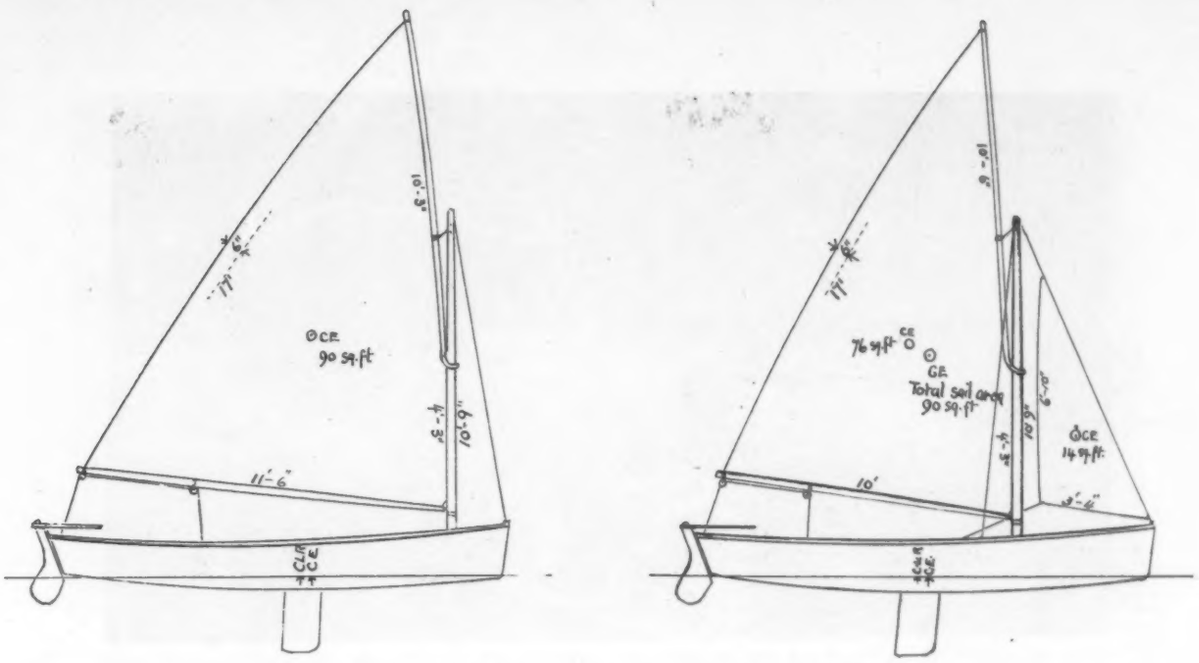




Clamp for center-board box.

Fig. 11

All wicking to be embedded in white lead.



and V, squaring them carefully across the building horse. To Sections II, III, and IV (Fig. 3), fasten some 2 x 3 cross spalls to support the molds you are soon to make. Be sure to notice that Spalls II and III are on the after sides of the marks and that Spall IV is on the forward side of its mark. Strike a center line on the spalls and you are ready to make, and place, Molds II, III and IV. Fasten them with screws to the indicated sides of the spall, and when putting in the screws see that they will be accessible when you come to get the boat off to turn her over for inboard finishing. Stay the molds plumb to the horses with wooden braces.

As for the transom (or stern board), it is best to work it out of a single width of oak or mahogany, but if this is not obtainable you will have to dowell two pieces together. Notice that the two corner cleats are left long enough (Fig. 4) to fasten to the back of Spall I, which is bevelled 12 degrees to receive the ends of the cleats. Secure at the proper angle with braces to the horses, remembering that the boat is to be built upside down (Fig. 5).

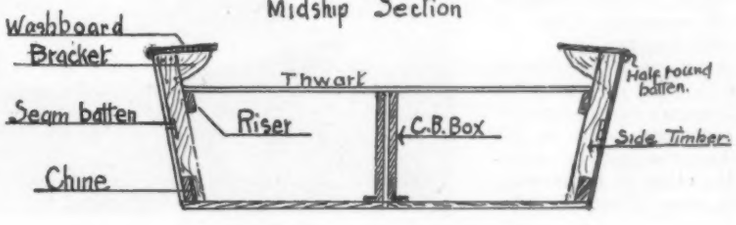
Make off the stem (Fig. 6), and fasten with screw into the head to the center line of Spall V. Brace this well in two ways, at a lateral angle of 12 degrees to the horses, as you did the transom, and plumb sideways by means of a long brace to some point in your building, overhead. You can't be too careful about holding this stem plumb while you are planking, for if it ever gets "wee-wahed" you'll never hear the last of it. It is here that most amateur builders fall down.

Before planking, notch out the molds to make room for the chines and seam battens. The seam battens are just halfway up the sides of the molds. The side plank is lined perfectly straight on both edges and meets with a seam on the center of the batten, the flare of the sides and ends giving all the sheer and sweep required by the model.

When planking, start at the sheer line and, before bending, fasten the fore end into the rabbet of the stem with the 1¼" No. 8 screws. Place them in a double line about four inches apart, sinking the heads enough for putty. Then gradually draw the two after ends of the plank together, and thus avoid an excess of side pull on the stem. If working alone, take a turn of small line around the ends and twist it up with a stick to hold it in place while you are driving the screws. With half-inch planks, however, there is not much strain in bending. Fasten off the center edge of the plank to the seam batten with ¾" No. 8 screws before bending on the next plank. This will enable you to clamp the

(*Continued on page 74*)

Fig 7.a
Midship Section



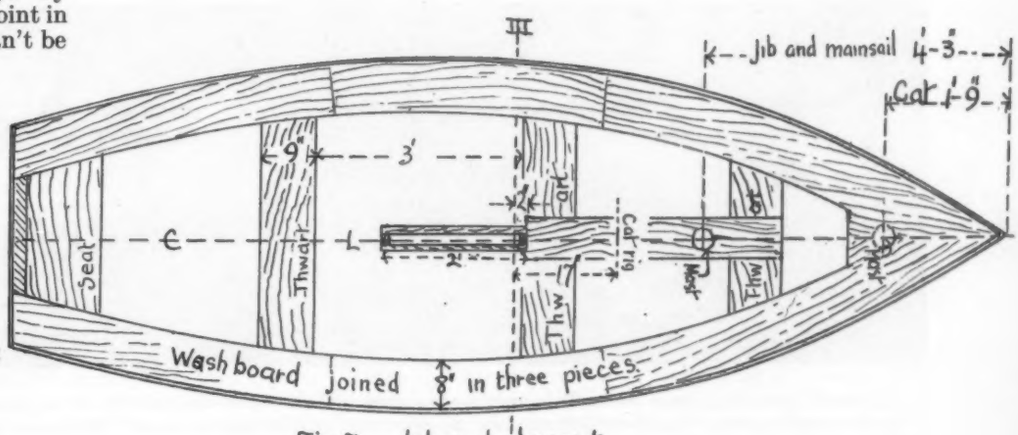
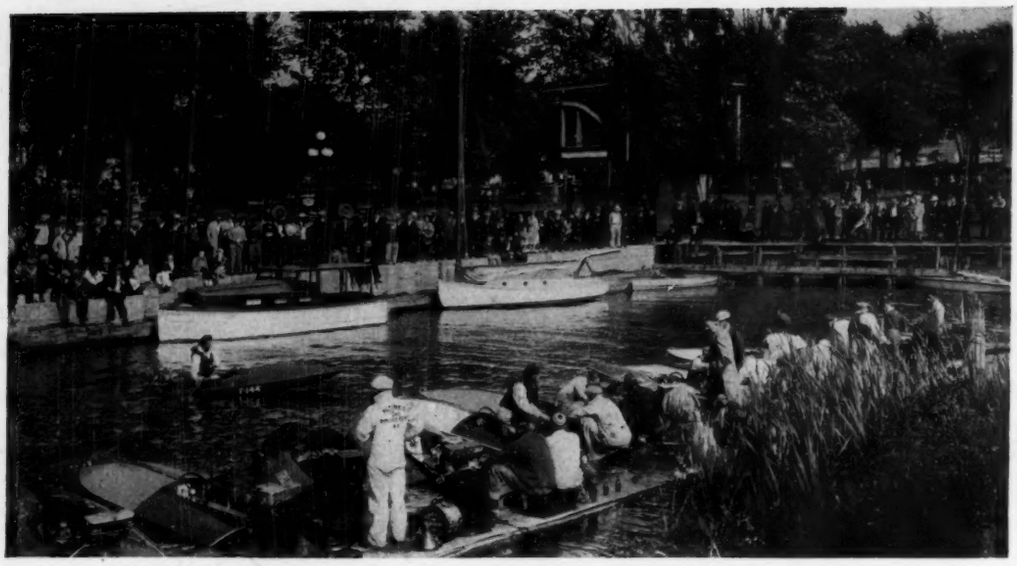


Fig. 7. Inboard layout



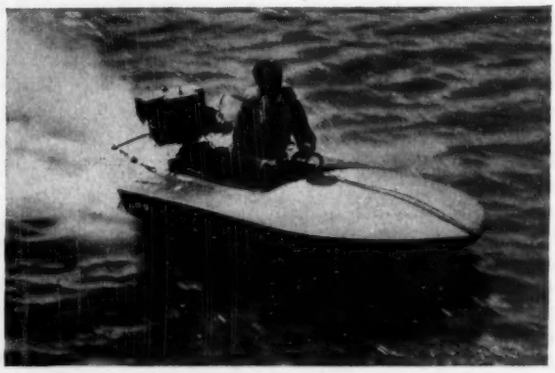
The national outboard championships brought nearly 200 drivers and officials to Bay City

Twelve New Outboard Champions

THE fourth of the annual national championship outboard regattas which was held at Bay City, Mich., October 8th to 11th, resulted in twelve new champions. Originally scheduled for October 7th to 9th, wintry blasts and snow were responsible for the postponement of the final running until the 11th, when the drivers raced around the 1¼-mile course in very fast time, despite icy winds. Nearly 200 were gathered for the series.

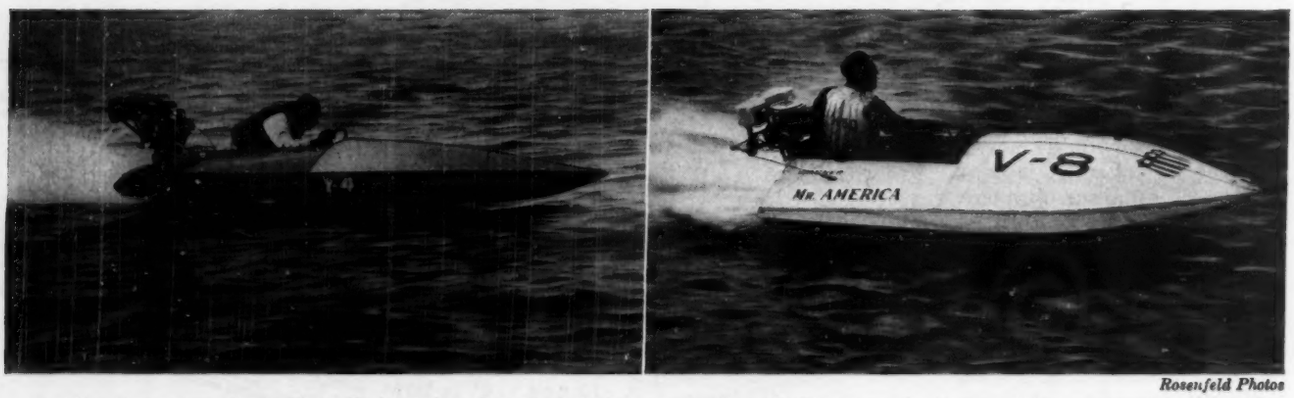
The first championship to be settled was in the Class A amateur division, which was won by a 16-year-old high school girl, Ruth DeRoo, of Flint, Mich., who has been racing only two months. To win this, she established a speed of 36.14 m.p.h., leading a fleet of the fastest amateur Class A drivers in the country.

Faced with motor trouble in the Class B, Div. I, event, Art Jacobs, Chicago's new champion, had to keep one hand on his engine to keep the gasoline pumping, and the other on his steering wheel, his eyes alternating between his opponents and his motor as he bumped around the course. He defeated James Sapp, of Atlantic City, at a speed of 37.34 m.p.h.



Jackie Maypole, recipient of the new Townsend Medal for the all-American high point standing, encountered bad luck, for he spilled twice in the same place, slightly injuring himself, and was dethroned by Jacobs for the national Class B amateur championship. Bay City's Hilda Mueller, former Class A professional "champ," was put out of the running in that event this year when she spilled at the south turn. Ed Hauptner was winner in this class at a speed of 36.51 m.p.h. Another spectacular accident occurred when J. C. Harland, of Seattle, cracked his boat in two when he smashed squarely into a cement wall. The unfortunates were all picked up by the Coast Guard, none being seriously hurt. The cold weather greatly affected the attendance, but could

(*Continued on page 88*)



Rosenfeld Photos

In Class F, amateur, James Nunnelly (center) made a speed of 45.34 m.p.h. A speed of 49.72 m.p.h., in competition, was made in Class F professional by Arthur Sauerberg (left) who holds the mile record, at 58.91 m.p.h., as well. The Class C amateur event was won by Jack Smith (right), who turned in a speed of 44.33 m.p.h.

Photo by J. M. F. Hasse

Out in Southern California, the Coronado Yacht Club, on San Diego harbor, has completed the first unit of its new yacht basin for the mooring of its fleet on Gloriette Bay

The Month in Yachting

Barnegat Bay Championships

IN THE season recently concluded on Barnegat Bay some two thousand starts were recorded in the various regattas held at one or another of the seven member yacht clubs of the B. B. Y. R. A. While the entries in most regattas were slightly behind those of last year, the great increase in race days and the lengthening of the season at each end resulted in establishment of the new mark. The Stars pried the lid off the season on May 8th, and from then until mid-September, every Saturday and Sunday was the occasion for no little gunfiring, with eight classes sailing in all major regattas.

Inter-fleet competition was had in the Star Class with some of the newly purchased boats of the Ocean City Yacht Club squadron, and with the Little Egg Harbor Yacht Club, of Beach Haven, in several other classes. Yachts from the Barnegat Light Yacht Club as well as the Cricket boats from Pleasantville, and the Atlantic City fleet of Evening Stars attended Barnegat Bay regattas for the first time.

For seasonal championships there were eleven point races, nine being necessary to qualify. The blue banners carrying the red and white insignia of historic Barnegat Light were awarded the champions, as follows:

Class A catboats: *Bat*, skipper, Beck Crabbe. Toms River Y. C., 71.9%

Class B catboats: *Pastime*, skipper, J. H. Wurts, Mantoloking Y. C., 68.6%

Class A sneakboxes: *Flying Devil III*, skipper, E. F. Britten, III, Bay Head Y. C., 95.3%

Class B sneakboxes: *Bay Bee*, skipper, P. R. Van Duyne, Jr., Bay Head Y. C., 79.1%

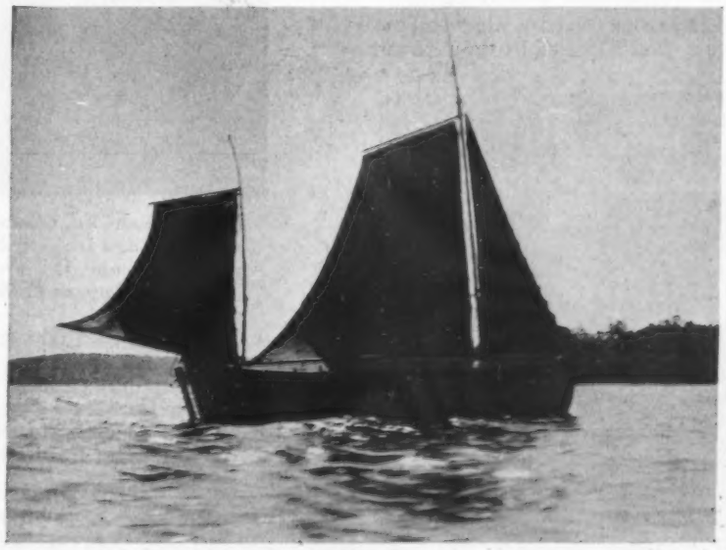
18-Foot catboats: *Petrel*, skipper, T. Debevoise, Mantoloking Y. C., 76.0%

Class E sloops, Div. 1: *Ardette*, skipper, T. M. Chance, Mantoloking Y. C., 83.9%

Class E sloops, Div. 2: *Shadow*, skipper, R. W. Seabury, Mantoloking Y. C., 72.7%

Star Class: *Curlew*, skipper, H. A. Ludeke, Seaside Park Y. C., 69.4%

CHAS. E. LUCKE, JR.



Getting her to windward. This old ship's boat, with a very-much-home-made-rig, was seen recently beating up the aristocratic harbor of Oyster Bay, and Elihu Root, Jr., who took the photograph, says her crew were doing a fine piece of sailing

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"Nanette" Wins Bessborough Challenge Cup

THE Royal St. Lawrence Yacht Club of Montreal was honored for the first time in its history by a Governor-General, when His Excellency the Rt. Hon. the Earl of Bessborough, presented a challenge cup to be raced for annually by a class of yachts which, in the opinion of the committee of the club, would encourage yachting among the junior members. The committee decided that the cup should be sailed for in Class E, and each owner agreed to carry at least one junior on his yacht for the race.

The "E" Class on Lake St. Louis is an old, established class, originally called the 3-rater class, designed by Fred Shearwood, who formerly designed a number of yachts which successfully defended the famous Seawanhaka Cup. They are a shallow draft boat 27 feet in over all length, carrying 300 square feet of sail in mainsail and jib. Some are fitted with double rudders, bilge-

"Nanette," a Royal St. Lawrence Class E yacht owned by former Commodore R. C. Stevenson, which recently won the Governor General's Trophy on Lake St. Louis

boards and Marconi mainsails; others have gaff sails and either bilgeboards or centerboards with a single rudder. Several have small cabins, which are very useful for week-end cruising.

The class has proved very popular in the past both for racing and cruising, and in the last few years several new boats have been built, which now makes it the largest class on Lake St. Louis. To show what a good, healthy type they are, the original yacht, owned by Mr. Shearwood, is still racing and doing quite well against her newer competitors after being over 25 years in commission.

The race for the Governor-General's Cup was set by the Sailing Committee for Monday, September 5th, which being Labor Day in Canada, is a public holiday. Owing to lack of wind, the race had to be called off and was postponed to the following week-end. The course chosen had the starting line off the Royal St. Lawrence Yacht Club Pier at Dorval; from there the yachts sailed up the Lake to Pointe Claire, about five miles away, and then around a triangle of three miles and back to the finishing line at Dorval.

Seven boats went to the line for the re-sail, the weather conditions being almost perfect. The boats were closely bunched at the start, *Nanette*, sailed by Commodore R. C. Stevenson, being over the line first. But she was soon passed to windward by two of the Marconi-rigged boats, *Bluebill* sailed by the veteran Charles H. Routh, and *Kingfisher* sailed by J. C. Hunter. These three leaders made a close race of it throughout the course. The fleet made a wonderful picture as the boats ran down to the finishing line, led by *Bluebill*, every stitch of canvas drawing in the freshening breeze. Only one minute and 35 seconds separated the three leaders at the finish. When time allowances had been figured it was found that *Nanette* had saved her time and was thereby the first winner of the cup. Commodore R. C. Stevenson had with him as crew A. M. Ridout and two juniors, his son Richard M. Stevenson and Donald Galloway.

The summary:

	Name	*Skipper*	*Elapsed Time*	*Corrected Time*
1.	*Nanette*	R. C. Stevenson	2.01.30	1.55.30
2.	*Bluebill*	C. H. Routh	1.59.55	1.58.08
3.	*Kingfisher*	J. C. Hunter	2.01.29	1.59.42
4.	*Corvette*	C. F. Duclos	2.06.15	2.00.15
5.	*Brunette*	N. Stewart	2.05.55	2.04.11
6.	*Laurette*	C. A. Peachey	2.12.13	2.06.13
7.	*Woc*	N. C. D. Mactaggart	2.22.31	2.20.54

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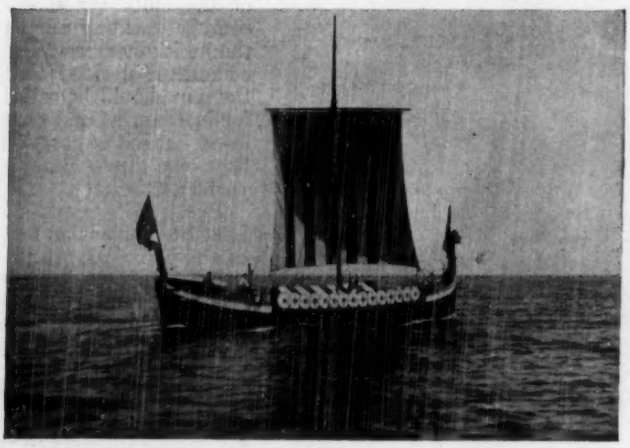
Another Year at Marblehead

ALL things considered, the racing season of 1932 on the North Shore of Massachusetts Bay was a highly successful one from the point of view of the sport. The fleet, of course, fell off in numbers, but to a surprisingly small degree. The largest class, the Bar Harbors, was lost entirely and, quite possibly, for all time; but Class Q and the Eight-Metres held their own. In the moderate-sized classes there was the largest loss; the Seawanhaka Schooners did not race, while the 40-Square-Metres lost three, and the Herreshoff Class S four boats. The Triangle Class, back with eight boats, balanced a drop of two from the M-B Knockabouts. Class T also fell off while the big class of 45 Brutal Beasts held its own.

Howard Blackburn, Gloucester's most famous sailor, who died in November at the age of 74 years *(see page 64)*. *From a portrait by Margaret F. Browne*



As the Vikings voyaged. The Norwegian Viking ship "Roald Amundsen," which was sailed across the Atlantic a year ago, caught under sail off the Jersey coast by Mr. F. G. G. Lyon in his power cruiser "Spindrift." Unlike the Vikings, this boat carried an auxiliary motor

Special Trophies

Guy Lowell Memorial Cups (Sunday racing)
Eight-Metres: William T. Aldrich's *Armida*
Class S: Joseph A. Clapp's *Arrow*
M-B Class: Lincoln Davis's *Sonia*
Mrs. Edward M. Abbot Trophy, Class Q (Sunday racing): Chandler Hovey's *Robin*

John B. Farr

Corinthian Y. C. Class Q Trophy: Chandler Hovey's *Robin*
Arthur W. Stevens Trophy, Class Q (Race Week): Edward M. Abbot's *Falcon*
Hovey Gold Bowl, Eight-Metres (Race Week): Charles P. Curtis's *Ellen*
Eastern Y. C. Ladies' Plate, Eight-Metres: William T. Aldrich's *Armida*
Snail Cup, M-B Class: Parker H. Jones's *Comet*
Knowles Memorial Trophy: Parker H. Jones's *Comet*
de Lorial Memorial Trophy: Paul Jacobs's *Rita II*
Arthur Goodwin Wood Memorial Trophy (Corinthian), Class T: Alden V. Haskell's *Sinbad*
Arthur Goodwin Wood Memorial Bowl (Pleon); winner of the Pleon Y. C. Gold Medal of Merit for 1932: Hamilton Young
Puritan Cup: Frederick H. Prince's *Weetamoe*
Curtis Cup, North Shore Junior Championships: Eastern Y. C., Captain Chandler Hovey, Jr.
Sears Bowl: National Junior Championships: Eastern Y. C., Captain Chandler Hovey, Jr.

Results by Classes

Yacht	*Starts*	*Eastern*	*Corinthian*	*Season*
25 Rating, Class Q				
Robin	22	.687	.720	.717
Falcon	21	.679	.588	.654
Cara Mia	22	.723	.568	.651
Lively Lady	21	.473	.569	.510
Taygeta	20	.469	.465	.465
International Eight-metre				
Ellen	19	.843	.644	.734
Armida	22	.688	.686	.699
Egret	20	.479	.445	.490
Ala II	20	.455	.535	.478
Class X, 30-Square-metres				
Michl V	23	.762	.821	.799
Bacchant	22	.691	.629	.689
Oriole	21	.556	.650	.620
Herreshoff Class S				
Spindrift	17	.772	.544	.684
Woodcock	21	.791	.652	.676
Arrow	20	.700	.489	.599
Mischief	22	.663	.540	.561
Dolphin	22	.595	.542	.545
Triangle Class				
Vagus	23	.689	.748	.733
Periwinkle	21	.633	.716	.724
Teaser IV	23	.710	.560	.656
Anna Lee	22	.742	.589	.625
M-B Knockabouts				
Sonia	23	.652	.812	.751
Kuma	20	.588	.733	.666
Evanthia	21	.659	.501	.603
Navigo	21	.530	.633	.598
Comet	21	.722	.487	.584
Class T, 14-Footers				
Sinbad	22	.650	.730	.699
Ilex	22	.468	.627	.583
Meteor	19	.709	.578	.566
Sea Beast II	22	.592	.480	.552
Bandit	19	.602	.407	.536
Brutal Beast Class				
First Division				
Katydid	22	.845	.924	.887
Bantam	19	.714	.565	.654
Second Division				
Chunky	20	.952	.837	.892
Third Division				
Dixit	22	.854	.840	.861
American Boy	20	.724	.926	.805

Leonard M. Fowle, Jr.

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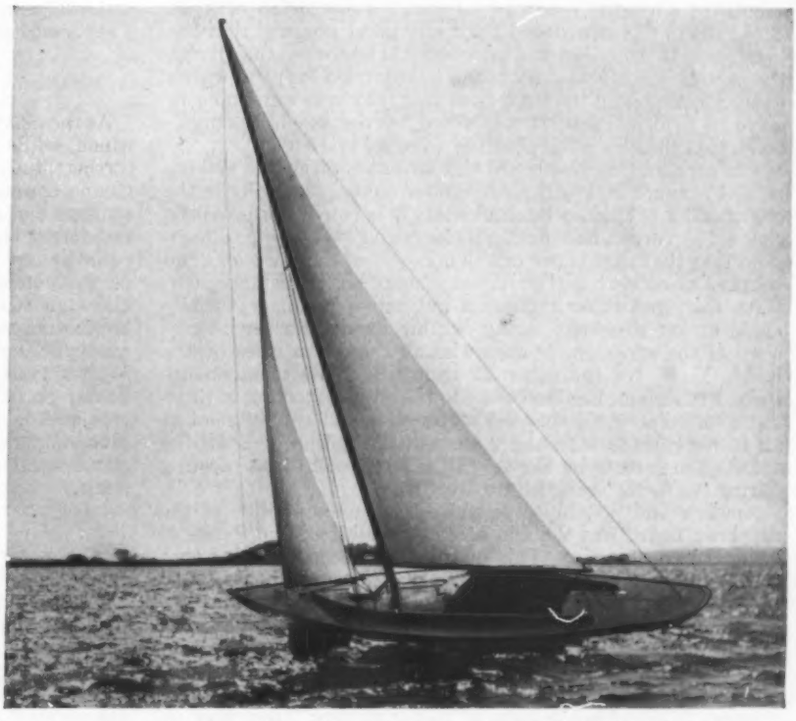
John B. Farr

JUST as we went to press on the last issue of Yachting we heard of the passing, on October 17th, of John B. Farr, President of the Kermath Manufacturing Company for almost a decade, and one of its founders. He died at his home in Detroit of a heart attack.

An ardent yachtsman, Mr. Farr was identified with the sport as much as he was with the making of engines. He was the donor of the Kermath Trophy, a perpetual cup for cruiser racing which has been a feature of Detroit River racing for the past five years.

For eighteen years he was a member of the Detroit Yacht Club, under whose burgee his power cruisers, *Nomad I* and *Nomad II*, *Junior F* and *Alpha*, raced in every major contest. In 1923 Mr. Farr, assisted by a Detroit Yacht Club crew, drove his *Nomad II* to victory in the Scripps Reliability Race from Rocky Point to Put-In-Bay and back, winning this coveted trophy for long distance racing on the Great Lakes.

Besides being on the Executive Committee of the Detroit Yacht Club, he was a member of the Detroit Boat Club and the Detroit Athletic Club. He was an active leader in the marine industry for many years and endeared himself to all with whom he came in contact by his whole-hearted devotion to the cause which he loved so well.



A new centerboard sloop, by the Herreshoff Manufacturing Co., Bristol, for Great South Bay. She is 35 feet long over all, 24 feet on the water, and draws 2 feet 10 inches

Peace Reigns in Motor Boating

By

GEORGE W. SUTTON, JR.

THE annual meeting of the American Power Boating Association, held in New York, on October 27th, and the various meetings of the A. P. B. A. contest boards during the week, were conducted in an atmosphere of peace, harmony and love with only an insignificant verbal battle here and there to produce the necessary feeling of normality.

The most important action of the 29 delegates and 7 proxies representing the 155 clubs in the association at the moment, was the reëlection of George H. Townsend as president and, with him, the few elective officers — Leonard H. Thomson, of Detroit, secretary; Ira Hand, of New York, treasurer; William M. Eldridge, New York, timer; E. V. Rippingille, Detroit, measurer, and Fred W. Horenburger, New York, surveyor. All other offices and committee memberships were left "as is," but a very important piece of legislation was the adoption of some new rules, including one authorizing the council to elect vice-presidents. At present, the A. P. B. A. has ten vice-presidents, in various parts of the country, ranking in seniority according to the age of the sections they represent. Under the new rule a complete overhauling of the situation is contemplated and the results cannot be other than salutary.

Unquestionably, the reason why this annual meeting of America's ruling motor boat racing body passed off with such smoothness was that, since President Townsend took office last year, he has had regular monthly meetings of the council instead of the annual or semi-annual meetings hitherto held. The council has thus disposed of a huge amount of legislation, in job lots, instead of allowing it to pile up for hasty action at the annual meeting.

Mr. Townsend, who is now in Europe attending the annual meeting of the International Motor Yachting Union, together with J. Lee Barrett, of the Yachtsmen's Association of America, submitted a lengthy report of his year's stewardship of A. P. B. A. affairs which revealed the really great progress that has been made in American and international motor boating during the past twelve months. By radio, he extended his good wishes to the meeting with the suggestion that next year's annual conclave be held in Paris. It was voted by the assembled dignitaries that the idea is full of virtue, even if Paris isn't.

The runabout contest board had its action ratified in making radical changes in American runabout racing, especially in the classification of engines. Such a variety of horsepowers have been claimed by various manufacturers for engines of the same dimensions that the board threw out all horsepower classifications and adopted a new set based on cubic inches of piston displacement. With this, and other numerous but minor changes officially made in our runabout racing, we are awaiting with interest word of the adoption, or otherwise, of these new rules by the I. M. Y. U. for the other 22 countries in its membership. Italy, France and England came to the annual meeting in Brussels with voluminous suggestions for runabout changes, not at all in accordance with the American changes, which will be acted upon further by the A. P. B. A. council at its meeting during the forthcoming Motor Boat Show.

Another and possibly even more far-reaching action of the runabout board was the admission to stock racing of boats of lapstrake construction. This question has been bubbling ever since it became evident last spring that lapstrake boats of the Pigeon, Prigg and other types could run circles around the runabouts with conventional bottoms. While hydroplanes with transverse steps are still barred, the new ruling means that Dodge, Chris-Craft and other builders of standardized runabouts will have to build clinker type boats or suffer the consequences in countless defeats of racing owners. They may, of course, devise something new to offset what Pigeon and the others have discovered. It means a revolutionary change in runabout racing and one that seems in line with boatbuilding progress.

You sometimes find peace where you least expect to find it. In other words, the cruiser contest board of the A. P. B. A. at its annual meeting found no evidence of dissatisfaction with present rules governing cruiser racing, even in the long-disputed matter of handicapping by measurement or the past performance rules. Therefore, no changes were submitted to the main body of the A. P. B. A.

At the annual dinner party of the Gold Cup contest board things were a little different, but the harmony and love that dominated the other meetings showed up there, too. Horace Dodge made approximately 1783 suggestions for changes in Gold Cup procedure, of which 1781 were thrown out of the door, but in very friendly manner indeed. The two which were adopted will add considerable interest to future Gold Cup contests.

The Gold Cup has always been confined to boats and motors made in this country and, thus, it has become the greatest development race we have for experimentation with hull design and power developments. Last year Dodge had a boat designed in England by Fred Cooper, designer of *Miss England II*. She was barred from participation in the Gold Cup. Now, however, the rules have been thrown open so that foreign-built hulls may take part if equipped with American engines, provided that the owners are affiliated with the A. P. B. A. The other idea adopted was an extremely generous gesture on Mr. Dodge's part and one which will add still greater interest to forthcoming Gold Cup races. This was the presentation of the famous $15,000 Dodge Memorial Trophy for a special race for Gold Cup boats at Detroit next year, and the presentation of ten cups, one for each of the next ten Gold Cup races, for the oldest hull in the race, with a minimum of five years. This will tend to keep such worthy old packets as *Delphine IV*, *El Lagarto*, *Miss Columbia* and others alive and kicking to compete with newer craft. They have certainly made a fine job of it for the past two years.

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At the Gold Cup meeting Mr. Dodge brought up a suggestion which, while not adopted, was passed on to a committee for further study and which, if eventually put into effect, may mean a considerable reduction in the cost of Gold Cup boats, and a number of new participants. It was his idea that, instead of restricting Gold Cup motors to 625, or any other number of cubic inches' cylinder capacity, to rate them according to ratio of cubic-inch displacement per pound of boat and engine, although still retaining the 25-foot limitation for Gold Cup boats. This would throw the Gold Cup race open to a great many different types of engines now available instead of restricting it to two or three, as at present. It would also produce lighter boats, probably more skilfully designed, greatly reduce the cost and, according to Mr. Dodge, would encourage other engine builders to produce power plants of new types. His suggestion is a ratio of 3½ pounds per cubic inch of piston displacement.

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The motor boat experts have come out of winter quarters at Bay City and the National Outboard Championships, which were delayed on account of a blizzard and other evidences of disapproving Nature, have been completed. And sure enough, as exclusively forecast in this great family journal and several hundred other publications, the Townsend medal, emblematic of the National Outboard High Point Championship for gaining the greatest number of points in the 42 regattas sanctioned by the A. P. B. A. and the National Outboard Association, has

(*Continued on page 73*)

A close start at Mason's Island

Along with the Frostbiters

IT'S a pretty hard thing to tell just when Frostbite dinghy racing concluded its first season, and when it commenced its second. Of course, winter is the accepted season for Frostbiting, as the name implies. But dinks are raced any old time — whenever two or more of them show up in a port. However, the first season closed officially on May 7th, at New Rochelle, and we believe that the second season started October 13th, at Mason's Island. There having been no official schedule of races, this statement stands until controverted.

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The racing at Mason's Island on October 16th brought out two dozen dinks of varying design and vintage. They came from New York, Boston and way stations, and owners and crews were hospitably entertained by members of the Mason's Island Club, which nestles in a splendid little harbor on the north shore of Fisher's Island Sound, near Mystic. Some six or eight races were run off in light weather, chief honors going to Arthur Shuman, sailing Francis Herreshoff's *La Petite*, and Lorna Whittelsey in Charlie Mower's famous *Snow Bird*. *La Petite* emerged the winner by a point or two when the score for the day was figured up.

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As announced in our November number, Larchmont has adopted a schedule of ten races for the winter. The first regatta was a flop — one race was run, most of the boats being paddled or rowed to the finish. George Ratsey, in *Tub II*, managed to drift in a winner. The flattest calm in the history of Long Island Sound balked all other attempts at racing, leaving a record fleet of 32 dinks doing nothing but drifting aimlessly about.

Larchmont's second event, on November 8th, was run off in a fresh nor'easter. George Ratsey, in *Tub II*, and Lorna Whittelsey, in *Snow Bird*, divided the winnings pretty evenly, with Harry Hall in *Cheetah* giving them both plenty to think about. The fleet was divided into divisions — Fast Boats, and Slow Boats, the first being mostly boats specially designed and built, and the second being regular stock boats. The Dyer, Swan and Ollendorf boats divided honors in the stock class.

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At any dinghy regatta these days you will find represented as fine an array of designing talent as anyone could ask for. So far, we have noted dinks designed by Charlie Mower, John Alden, Charles Nicholson, Fred Goeller, Francis Herreshoff, and Frank Paine, besides the stock boats — Ratsey, Dyer, Ollendorf, Swan, etc. Dauntless will shortly turn out a stock boat, and Olin Stephens will soon be represented by a smooth-skinned creation now building at City Island.

The annual meeting of the North American Dinghy Association was held on Thursday evening, November 10th, at the Blue Ribbon Restaurant, New York City. A large, enthusiastic and noisy gathering discussed the situation in general and took steps to remedy certain defects in the rules and make the sport more attractive for the majority of the dinghy owners. The following General Committee was elected for the coming year: Cornelius Shields, John G. Alden, H. Martyn Baker, Arthur Knapp and Samuel Wetherill, chairman. Mr. Knapp continues as secretary, and Snowden Andrews once more assumed the duties of treasurer.

A special committee, composed of Ernest Ratsey, Prescott Wilson, H. Curtis Hall and Evers Burtner was appointed by the chairman for the purpose of studying and reporting back to the General Committee its recommendations for the measurement of sails. A rule was passed requiring all dinks to carry a suitable fender, or fenders. Hereafter, all dinks must be measured, and each certified as a genuine utility dinghy by the General Committee, or subcommittee appointed by the General Committee, before being awarded a letter and number in Class A.

In the future, Class A will be divided into two divisions according to speed. A new boat, for instance, will be tried out in Division I which is for the older and somewhat slower boats. If she proves definitely faster, she will be graduated into Division II. In this way, it is hoped that interesting competition will be provided for the owners of slow and fast boats alike.

A motion was passed recommending the adoption of a 10-foot sailing dink, as many people feel that the 11½-footers are really too big and bulky as tenders to small craft. Two experimental boats will probably be built in the near future.

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The question of rig has apparently simmered down to two — the standard stock lug rig, and a modified sliding gunter. The latter has been developed by Francis Herreshoff, and others, into what amounts to a Marconi rig, and while it has a few converts, the majority are sticking to the lug, which seems to do quite well against its new-fangled sister.

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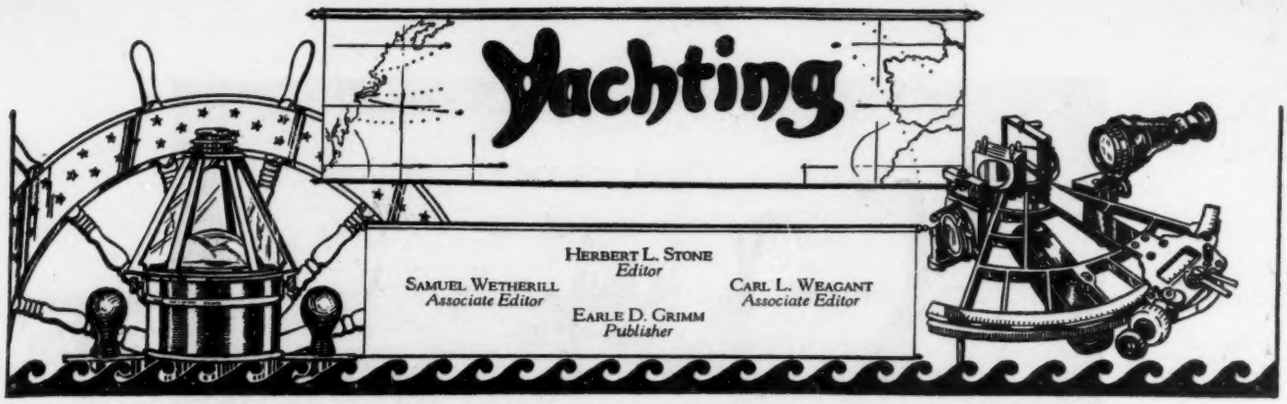
The fastest dinks to date in the East seem to be *Snow Bird*, designed by Charlie Mower, *La Petite*, from the board of L. Francis Herreshoff, and *Tub II*, turned out by Charles Nicholson. Harry Hall's *Cheetah*, from her owner's design, can give them all a rub when it breezes up a bit. All these four can wallop the stock boats in almost any weather, and form a basis for Division II of Class A.



EDITORIAL

Howard Blackburn — Master Seaman

TO BUT few men has the sea been as cruel and at the same time been such a necessary part of life as to Howard Blackburn, master mariner, of Gloucester, who died last month at his home in the Cape Ann fishing port, in his 74th year. From the time he first went to sea at the age of fifteen, his was a life of glorious adventure and of hardship which one with a less rugged constitution could not have withstood. He was an outstanding example of the fine type of seaman bred in the New England fisheries, generous and big-hearted. The physical handicap which he suffered as the result of the loss of all his fingers and toes during his memorable dory trip on the Grand Banks at the age of 24 could not keep him from the sea or quench his spirit for high adventure, although it did affect his subsequent career. His life story, told by himself, appeared in YACHTING during 1929.

It was in January, 1883, that he and his dorymate became separated from their schooner, the *Grace L. Fears*, in a snowstorm, while hauling trawls. After a vain attempt to regain their vessel in a rising gale, they started to row to the Newfoundland coast. After five days and nights of unparalleled suffering, during which his dorymate died and Blackburn's hands were frozen to the oars and both feet frozen, he reached the coast and found refuge in a fisherman's hut. Here his fingers and toes were lost as the result of gangrene.

Inside of a year Blackburn was back at sea again, and later he commanded a fishing schooner on a voyage around Cape Horn to Alaska in the gold rush of 1897. On this voyage he added to his experience but not to his wealth, and an injury to his knee, sustained in Alaska, was a further handicap in a seafaring career. Two years later he built a 30-foot sloop, the *Great Western*, and sailed her single-handed to Gloucester, England, the passage lasting 61 days.

Still not satisfied, he again sailed across the Atlantic single-handed in the 25-foot sloop *Great Republic*, this time to Spain, making the crossing in 38 days. Later, he attempted the passage in a 17-foot dory, only to be capsized off Nova Scotia. But he managed to right his boat and make port, where he wisely abandoned the trip as too much for even his stout heart and body. Truly, his life was an odyssey of the sea.

Blackburn's later years were spent at Gloucester, where he acquired a fair share of wealth with which he was most generous, especially to seafaring men in distress. In 1928 he was made an honorary member of the Cruising Club of America. In that year he built a small sloop in which, at over 70 years of age, he sailed along the New England coast, still faithful to the sea which had used him so hardly and which had brought him fame. His spirit is still adventuring in the Great Unknown.

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Those Vexing Ocean Racing Rules

IN THE October issue we ventured to voice the opinion that the delay in framing an acceptable ocean racing measurement rule was regrettable and was leading to the adoption of various rules for cruising boats in other localities, which would make for confusion, and might retard building. To this statement Mr. William H. Taylor, a well-known yachting writer and a frequent contributor to this magazine, takes exception in an article in the *New York Herald Tribune*. In speaking of the growing popularity of cruiser racing, this scribe says:

"At present, the salvation of the cruisers is probably the fact that they are measured and handicapped under different rules in almost every race they enter. There is no particular point in building a cruising boat to a rule if she is going to race under it only once a year, so the owner who wants to both cruise and race still has plenty of choice in the type of boat he can build for the combined purpose. For instance, no two yachts could be much more fundamentally different than the lean, long-legged yawl *Dorade* and the stubby-ended ketch *Tidal Wave*, yet these two are among the most successful cruiser-racers in the fleet. The records of the past three years will show that each has won several of the more important races in which cruising boats compete, and each has made plenty of non-racing cruises.

"A recent editorial in a yachting magazine laments the delay of the Cruising Club's committee, which started out a year or so ago to frame a measurement rule for cruising boats that would be international. A more judicious editorial, it seems, would be one expressing the hope that no such rule is ever framed, or if framed, that it is not adopted for even a substantial minority of the cruising boat races."

With some of these points we are entirely in accord. The simpler the rule the better. But since no way has yet been found to race boats of different sizes and types together without some means of measuring, we still believe the *fewer the rules the better*. One good rule, generally adopted, is better than a multiplicity of rules requiring a yacht to be measured for each race she enters. We are afraid, also, that our critic is not consistent, for in the October issue of another sports magazine he stresses the importance of the various interested clubs and owners getting together and embodying their "various theories into a set of rules that will please everybody," and imposing their findings on the cruising-racing yachtsmen. Truly a big order, Bill!

IN THE WORLD OF YACHTING

LORNA WHITTELSEY

LORNA WHITTELSEY needs no introduction to yachtsmen, particularly to those who have followed her across the finish line so many times that it would be embarrassing to make a count. The unusual success of her yachting career can, perhaps, be accounted for in two ways; she has the natural ability of a helmsman and she started sailing almost as soon as she could walk. She has been at it unceasingly ever since. Her success is an outstanding example of what the junior movement can accomplish.

At the early age of six Lorna was sailing in competition in an Indian Harbor knockabout, and at eight she was "skipping" a 17-foot knockabout successfully. When she became old enough to sail in the Long Island Sound Midget Championship, at twelve, she was made a member of the Indian Harbor Midget crew. After three years' experience with the Midgets, she became a member of the junior crew for three more years. At fifteen she first represented Indian Harbor in the National Women's Championships, which she won, as she did three times thereafter. This year she was runner-up to the Edgartown women's crew.

Lorna's experience has by no means been limited to small boats. When in her 'teens she was sailing in the metre classes, and in 1931 she won, as skipper, the Ten-Metre series during the N.Y.Y.C. Cruise. At one time or another she has won races in Stars, Atlantics, Interclubs, and about everything that floats, including Frostbite dinghies. And in addition, she was at the wheel of the Cup contender "Vanitie" this year when the big sloop beat "Weetamoe" on Long Island Sound.

Lorna Whittelsey completed this past season with colors flying higher than ever when she won the hard-fought Interclub series against some of the best racing skippers in the country. Apparently, in the field of yachting, as in all other fields, there is no denying the women.

"Wrinkles"

Some Practical Suggestions

By STUART BRYSON

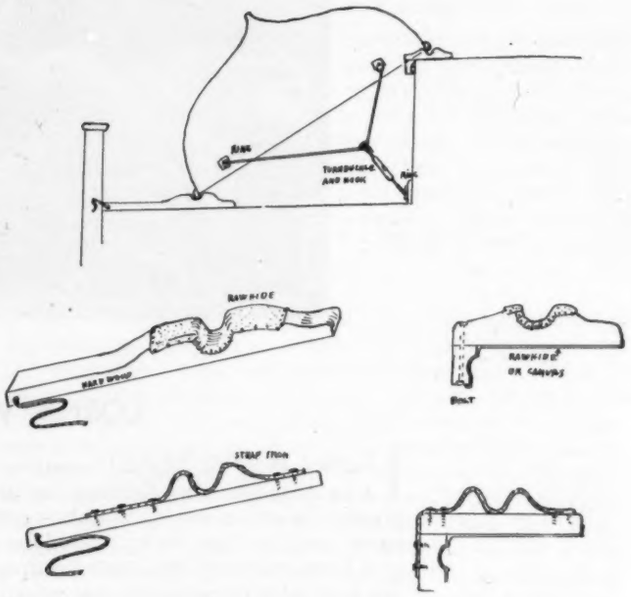
· Stowing the Dink

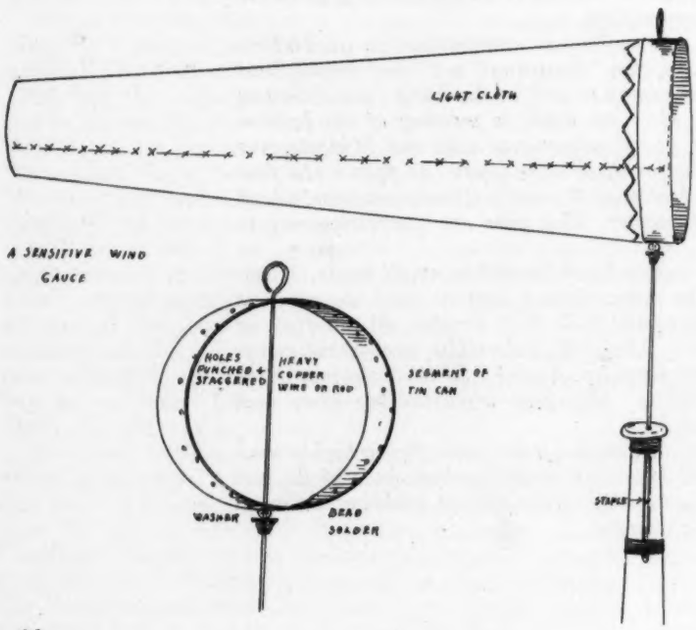
IN THESE days of seagoin' little ships, forever participating in lightship and ocean races, it's a wonder something hasn't been done about stowing the dink. All hands agree that one must have a dink, preferably large enough for the whole crew. But where, and how to stow it? The "where" will depend on the ship, and the "how," so far as our observations have disclosed, seems to be bottom up on deck or against the cabin side, old bumpers, rags and scraps of canvas being jammed under the gunwales in a futile effort to save the dink, the deck, and the cabin top from the inevitable chafe.

This wrinkle by no means solves the problem completely, but it has proved quite practical in our case. We used blocks of hardwood, as we had access to woodworking tools, but scrap iron, covered with canvas, would serve the purpose just as well. The deck block rests against the bulwark and the cabin block will remain in place when the lashings are set up tight. The lashing part of the job should be given some thought. We never could abide by the usual procedure of passing a light line around and around the dink, making it fast to bulwarks and such rings as were handy. However, knowing no better method, we followed this scheme until, one day, while running down a narrow channel into an anchorage on the Carolina coast, we ran aground on the weather bank, and before we could get sail off her and that confounded dink out of its network of lashings, we were high and dry — in fact, if we had had wheels, we'd have gone clear to California. Anyhow, it took fourteen kedges to drag her off, and between times we wracked our brains for a gadget that would grab the dink, lift her off the deck, and deposit her alongside by the time the echoes of our blasphemies had reached the trucks. We are still far from that, but here is the first step, for what it is worth.

Getting back to the lashings, we use a sling and turnbuckle on the transom end of the dink and a lashing through the bow ring. There is still a little movement, but the blocks take care of the chafe.

To repeat, this is a humble effort to solve a real problem and if some salty sinner knows of a better wrinkle, let's hear about it.





A Sensitive Wind Gauge

The old time tin-fish type of wind vane is of little use on a small, active vessel and not much better even on a large ship. It wobbles and darts from side to side with the motion of the boat, and from the deck it appears, most of the time, as only a thin line against the blue. There are other types, but the most sensitive and the most reliable is the wind gauge. It is steady even in fickle airs and while cheap enough at the chandler's you can make one in about the time it takes to buy one. The size will depend on the size of the boat. An empty can is the foundation. The rest of the material, listed as "junk" by the ignorant landlubber, and as "bos'n's stores" by sailors, can be found on every hooker.

Under the Lee of the Longboat

by Cap Stan

SOMETIMES we folks who dwell in the large yachting centers are apt to get into the habit of thinking that designing ability and ingenuity exist only in our near vicinity, and that the sailors in more or less out-of-the-way localities, about whom we hear little, are followers rather than leaders. Well, of course we're all wrong. To prove that point, peruse Gidge Gandy's article in the last issue, *A Proving Ground for Theories*. You don't hear much about St. Petersburg, Florida. There aren't any famous naval architects around there that I've heard about. Yet a bunch of amateurs from there, or thereabouts, have designed some hulls and rigs which would do credit to past masters of the art. They even make their own sails — and good ones, too. Give fellows like that the opportunity, and the urge, and something happens — pronto. Again, I hear that up on our Inland Lakes, where they sail "floating sidewalks," or scows with double bilgeboards and double rudders, they have developed a number of "gadgets" which are both ingenious and efficient. There are plenty of brains in the little heard of ports. Let's hope that the results of their efforts reach us oftener.

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Most of us — including a lot of boatbuilders — believe that over all length is the guiding factor in the cost of most sailing craft, particularly of the auxiliary cruiser type. Wherefore it was somewhat of a shock when A. E. Luders got up at a recent meeting of the Yacht Racing Association of Long Island Sound and stated point blank that you could figure the price of a boat as so much per pound, rather than per foot of length — in other words, that weight, or displacement, is what governs the cost. Nick Potter, representing the Herreshoffs of Bristol, agreed enthusiastically, and there were no dissenters. That's why the bids on the different designs submitted for the proposed new one-design class varied so much — some boats, shorter in length than others, were higher in cost — because they were craft of heavier displacement. Remember that point next time you get into a debate about the price of this or that boat being more or less than the price of some other craft. Some of the out-of-the-way builders may still sell 'em by the foot, but the wise ones sell 'em by the pound.

It hardly looks as though there would be a contest for the international trophy for Twelve-Metre boats offered by the North American Yacht Racing Union in 1933. To be sure, the Royal Norwegian Yacht Club would welcome a challenge from the U. S., in which case Great Britain and Sweden would also compete. However, there are no eligible American "Twelves" in existence, and it is doubtful if any will be built for a foreign invasion, although there is no question but that one or more boats would be built here if a challenge should be received for a race on this side. However, there is every chance for some international competition here, even if it's not for the international trophy. The owner of the British Twelve-Metre *Flica* is contemplating a season in American waters. *Flica* would have good competition from *Cantitoe*, *Mouette*, *Iris* and *Clytie*, and possibly one or two others. Let's hope this sportsman goes through with the deal — it would doubtless be a forerunner of a challenge in 1934.

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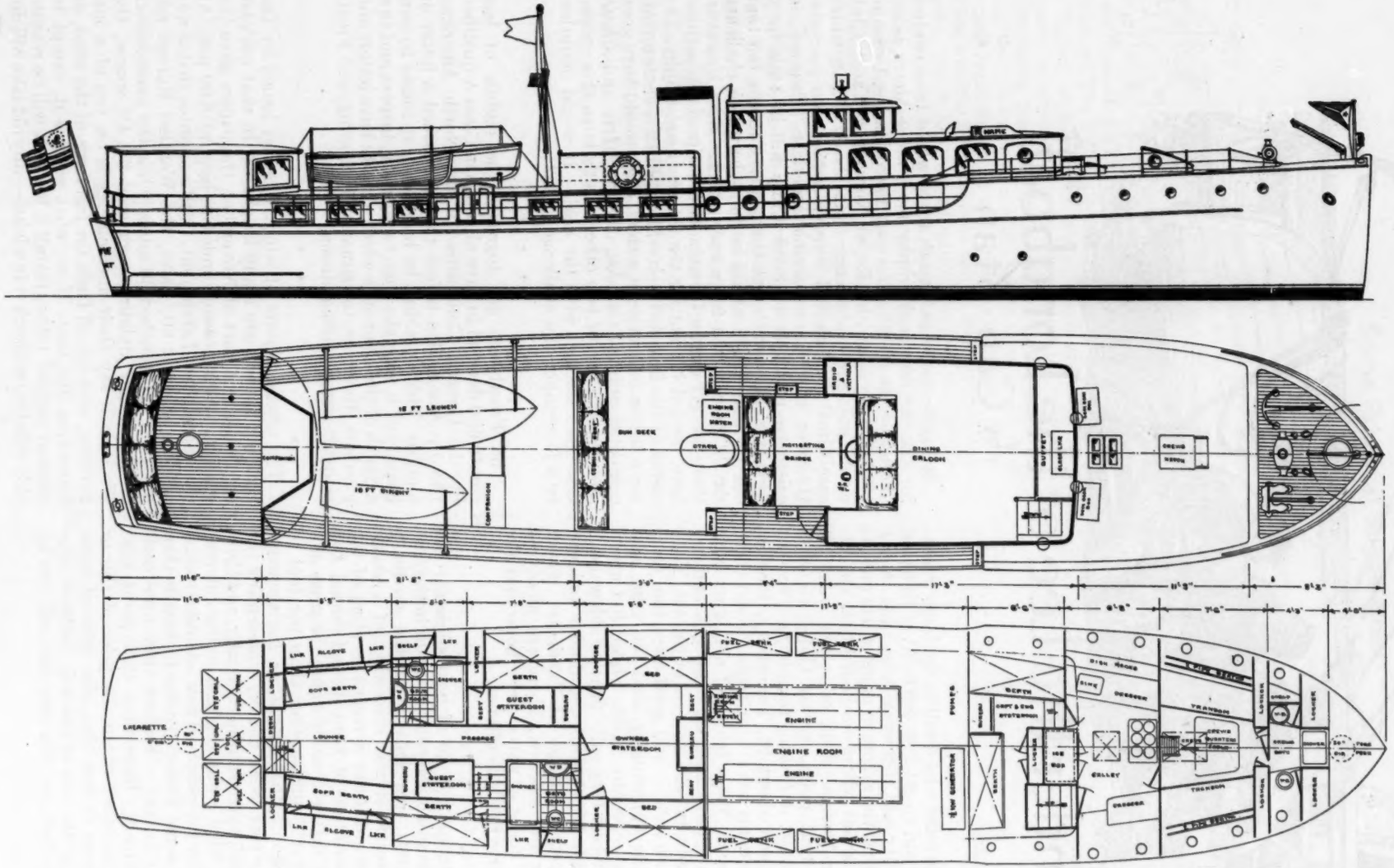
The Frostbiters got together the middle of last month and decided to have all dinks in Class A qualified by the General Committee of the North American Dinghy Association before they are issued a letter or number. This shouldn't be hard when it comes to new boats, but it will take time to measure, inspect and tow a bunch of the older ones which already have letters and numbers. However, the situation is clearing, and Frostbiting is already going strong.

+ + +

The official reports of wind velocities issued by the Weather Bureau are really laughable. In that nor'east storm the first part of November, the papers gave the wind as blowing twenty miles an hour at 8.00 p.m. At that moment, at Larchmont, I will guarantee that it was howling at least 60. Later, the Weather Bureau admitted it had touched 38 miles, while the anemometer on the Singer Building registered 93! Of course, the W. B. will say their anemometer is on top of a low building, and cut off from the full force of the wind, or something like that. If so, what good is it, except to mislead people? Either install it where it will be reasonably reliable, or chuck it in a lake — any old lake will do.

"Wasp," a Fast and Luxurious Great Lakes Express Cruiser



One of the fastest and most luxurious of the larger size express cruisers on the Great Lakes is the 88-footer "Wasp," designed by Henry C. Grebe & Co., Inc., of Chicago, and built by the Great Lakes Boat Building Corporation for Philip K. Wrigley. With her ample beam of just over 16 feet, she has excellent accommodations throughout, and steps out at a 23-mile clip when her twin 500 h.p. Sterling Viking motors are opened up. The sunken deck-house is used as a dining and lounging saloon, adjoining which is the navigating bridge. The after deck is semi-enclosed, and there is a sun deck just abaft the stack. In the owner's quarters are found a double and two single staterooms, two bath rooms and lounge with two berths. The ample galley and crew's quarters are forward. A 10-foot dinghy and 15-foot launch are berthed over the after deckhouse.

A Small Single-Hander with Novel Power Plant

THE handsome little yawl whose plans appear on this page is of the "canoe stern type" popularized in British waters some years ago by the late Albert Strange. She is from the board of Charles G. McGregor, of East Lynn, Massachusetts, and is of the following dimensions: l.o.a. 27′; l.w.l. 21′ 9″; beam, 8′; draft, 4′ 6″; headroom, 5′ 7″; sail area, 464 sq. ft.

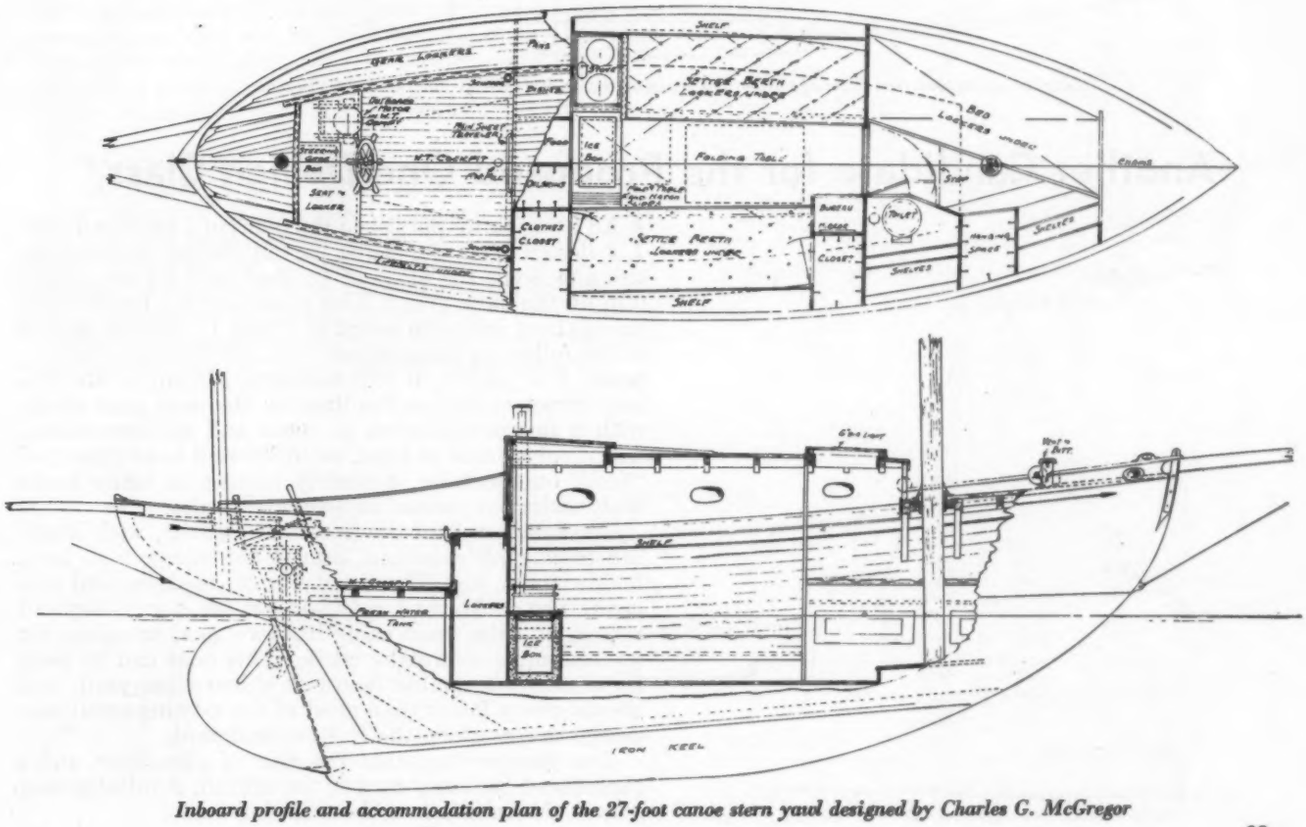
This little auxiliary, whose beam is a bit on the narrow side, should be a good windward performer with her long, sloping keel, and her length of lateral plane should assure steady steering in a following sea. The freeboard is good, with nicely lifted ends blended into a pleasing profile. Excellent headroom for so small a craft is obtained without resorting to a high, unsightly cabin house, and the cockpit and bridge deck afford an unusual amount of room.

Sail plan of the 27-foot McGregor-designed yawl

The jib-headed yawl rig is quite conventional for this size cruiser, giving good speed, easily handled sails, and a well-divided sail plan which should make reefing almost unnecessary in weather likely to be encountered in the summer months. The use of wheel steering, in place of a tiller, adds to the cockpit room.

Below decks we find a berth forward to port, with toilet room, shelves and hanging space opposite. The main cabin has two settee berths, with lockers underneath each. The galley and ice box are at the after end of the cabin, on the port side, with a hanging locker opposite. Dish, food and other lockers are under the bridge deck. A 35-gallon water tank is under the cockpit floor in the space usually occupied by a motor.

The auxiliary power plant is a novel arrangement, and consists of an outboard motor, with special propeller, mounted in a small watertight compartment built under the stern seat. The motor may be easily removed when sailing.



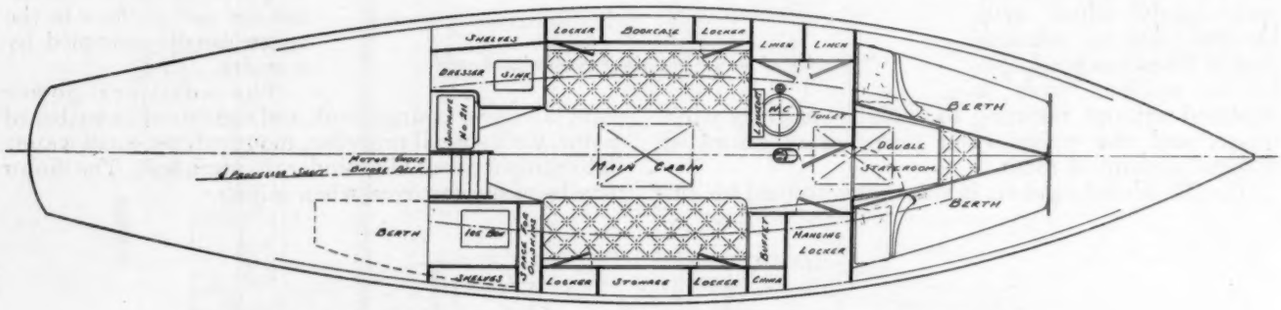
Inboard profile and accommodation plan of the 27-foot canoe stern yawl designed by Charles G. McGregor

A Smart Cruising Cutter

HERE are the plans of a smart cruising cutter with a fine turn of speed and good accommodations for four people, or five at a pinch. She is from the board of Sparkman & Stephens, and is of the following dimensions: l.o.a. 39′ 4″; l.w.l. 29′ 8″; beam, 9′ 6″; draft, 5′ 9″; sail area, three lowers, 748 sq. ft., with an additional 97 sq. ft. in the jib topsail. While designed strictly as a cruising boat, with rugged construction, spars and rigging, she should show good speed in any kind of going, and be a dangerous competitor in long distance races for cruising boats. An alternate rig without a bowsprit would reduce sail area a bit, yet be almost as efficient except in very light going, and reduce the rating to more than make up for any loss of speed.

There are good accommodations for four people below decks, with double stateroom forward, toilet room, main cabin, and galley aft. A 4-20 Gray motor should drive her at good speed. This craft should make a fine basis for a one-design cruising-racing class.

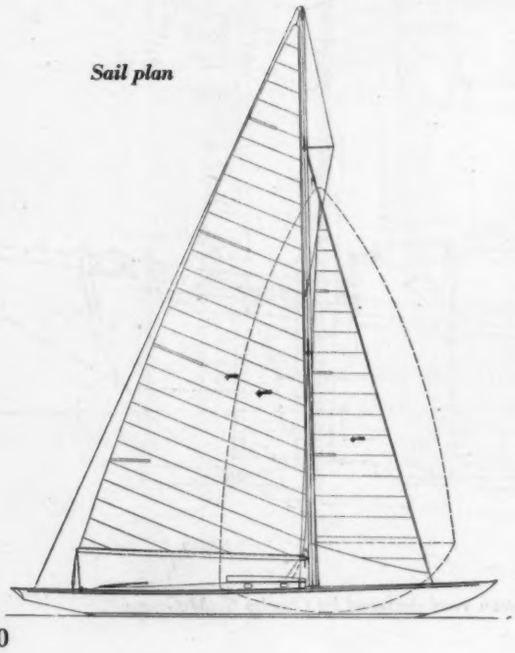
Sail plan



Interior accommodation plan of the 39-foot cruising cutter designed by Sparkman & Stephens

Another Candidate for the Proposed One-Design Class

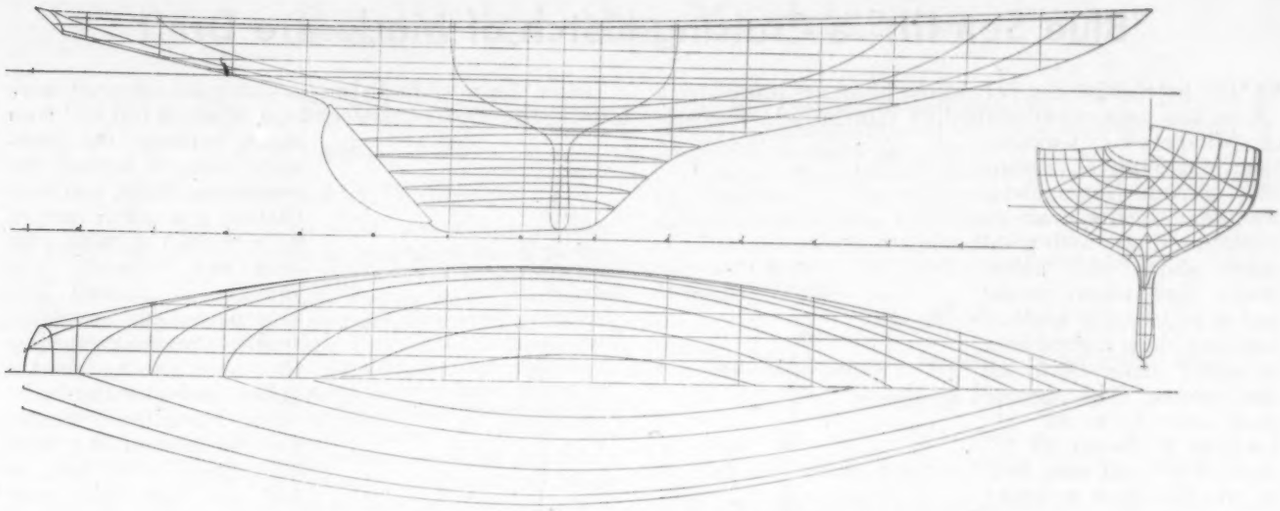
Sail plan



LAST month we published the plans of a proposed one-design class for Long Island Sound yachtsmen, and now come the plans of another craft for consideration by the same group. This newcomer is a fine looking knockabout from the board of Philip L. Rhodes, and is of the following dimensions: l.o.a. 35′ 8″; l.w.l. 23′ 4″; beam, 7′ 3″; draft, 4′ 10″; sail area, 435 sq. ft. She is a very sweet model, as the lines on the next page show, with a fine combination of speed and wholesomeness. The displacement is light, so she should have plenty of "feel" on the helm, a quality lacking in many boats built under our present measurement rules.

Construction is of the finest throughout, with Mexican mahogany planking, bronze fastenings, lead keel, hollow spars, etc. The rig is simple, modern, and efficient. The cockpit is nicely laid out for day sailing and racing, and the small cabin has two good transoms for an occasional overnight cruise. This boat can be built for a very reasonable figure at a first-class yard, and should prove faster than most of the existing small one-design classes along the Eastern seaboard.

Two jumper stays take the place of a headstay, and a permanent backstay runs to the taffrail. A roller reefing gear is shown fitted on the main boom.



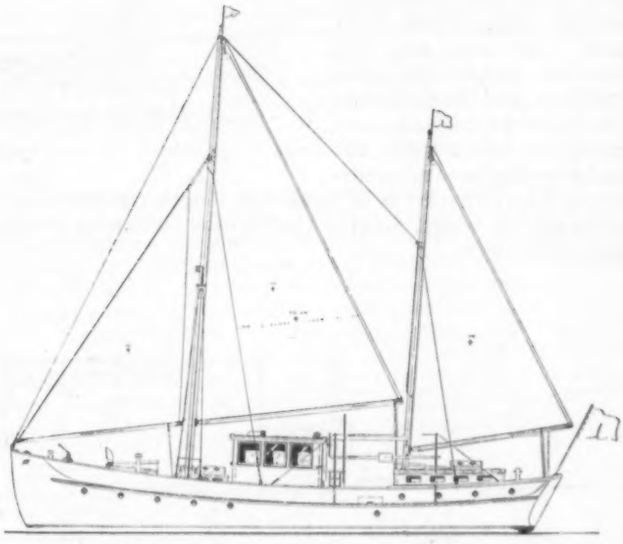
Lines and body plan of the Rhodes-designed one-design sloop described on preceding page

"Blue Jacket," an Excellent Combination of Sail and Power

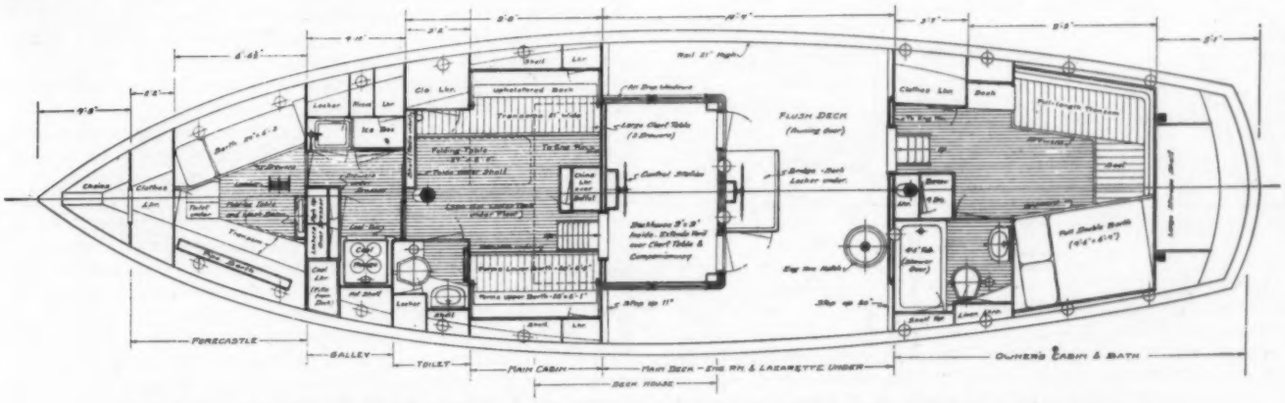
THE motor ketch *Blue Jacket*, designed by Wm. H. Hand, Jr., and built by Hodgdon Bros., was a familiar sight on the waters along the North Atlantic seaboard last summer, and created considerable interest, inasmuch as her design and arrangement are somewhat different from the average run of craft of this type, and worked out exceedingly well. Her dimensions are: l.o.a. 60′ 2″; beam, 16′; draft, 5′ 7″; displacement, 46 tons.

Blue Jacket has a jib-headed ketch rig of moderate area, under which she sails and handles well in a bit of a breeze. Twin Hall-Scott 100 h.p. reduction gear motors give her a cruising speed of 10 knots. Fuel tankage for 1000 gallons assures an excellent cruising radius under power alone, and she can walk right along in dusty going which would drive most power cruisers into port. All motor controls are carried to the wheel in the pilothouse, while there is an outside wheel abaft the wheelhouse.

The arrangement below decks provides a forecastle for two hands, a main cabin for four people, and an after cabin with double bed, full length transom, desk, bureau and ample closet room. There is a fine bathroom adjoining the stateroom, and good toilet room forward of the main saloon. Construction of hull and deck structures is exceedingly rugged. Great ease of motion in a seaway is accounted for by proper design of sections and distribution of hull weight and ballast.



Sail plan of "Blue Jacket"



Interior accommodation plan of the motor ketch "Blue Jacket," designed by Wm. H. Hand, Jr., of New Bedford

"Blue Sea III," a Cruising Ketch of Moderate Draft

THE ketch *Blue Sea III*, whose plans are reproduced on this page, was designed by Winthrop L. Warner, of Middletown, Connecticut, for Wm. D. Scranton, of New Haven, who wanted a husky craft of moderate draft, with good room above and below decks, and which would sail at a moderate angle of heel and show a good turn of speed under both sail and power. The dimensions are: l.o.a. 46′ 3″; l.w.l. 36′ 3″; beam, 13′ 1″; draft, 5′ 9″; sail area, 1043 sq. ft. The 30 h.p. heavy duty 3-cylinder motor, installed under the companion steps, should give a speed of 9 miles under power alone.

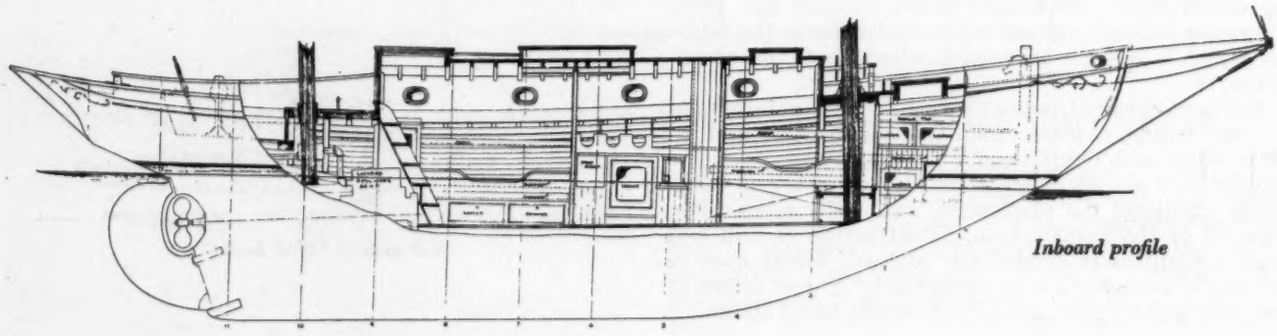
Blue Sea III has a decidedly able look about her, with fine freeboard, sweeping sheer and short ends. The beam and ballast are ample for good stability, and the moderate jib-headed rig should prove not only handy, but make reefing a rare occurrence. The bowsprit is of moderate length outboard, as is the mizzen boom, making the rig easy to handle in the hardest chance.

Sail plan

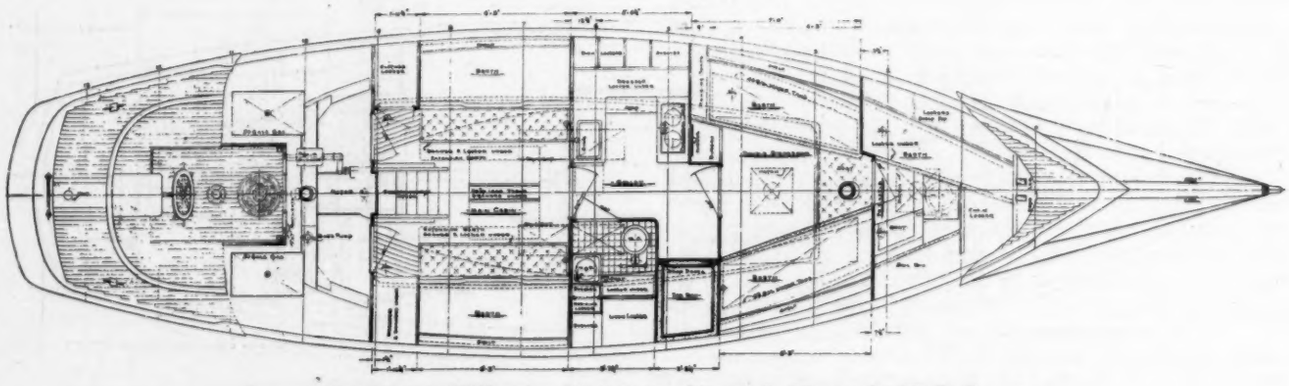
Below decks we find the spacious main cabin aft, with four berths, alcoves, drawers, etc. There is full 48″ floor space between the transoms, and, of course, full headroom. Light and ventilation are taken care of by a divided skylight with deck box between. The skylight is divided into four parts, and so placed that two sections ventilate the main cabin, one the galley and one the toilet room. The galley is located just forward of the main cabin, with stove, sink, ice box, etc. The toilet room occupies the after starboard side of the galley.

The owner's stateroom is forward of the galley, and is fitted with two berths, seat, bureau and hanging space. A hatch and four portlights assure plenty of light and ventilation in this cabin. Forward of the stateroom is the forecastle, with built-in berth for a paid hand, toilet, wash basin, lockers, and hatch leading to the deck.

On deck *Blue Sea III* is unusually roomy. In spite of the broad cabin trunk the decks are 2′ 6″ wide. The cockpit well is 5′ 6″ long and 4′ wide.



Inboard profile



Accommodation plan of "Blue Sea III," designed by W. L. Warner for W. D. Scranton

Books for the Yachtsman

The Sea in Ships

By A. J. Villiers

(William Morrow and Co. 1932. $2.75)

NEVER before has life at sea aboard one of the big square-rigged windjammers been so intimately and accurately shown as in this new book by that sailor with an insatiable hunger for the sea, Alan J. Villiers. And the life is shown not by word picture, but by a series of photographs that carry the very atmosphere of the ship with them. There is, to be sure, a brief foreword by the author, but it is the pictures which really carry the appeal and that show what going to sea on these old "windbags" was like. Here we have the decks breast deep in swirling water as the ship rolls rails under in heavy weather off Cape Horn; the short-handed crew floundering around as they take a pull on braces, halliards, and clewlines; the men strung out on the yard fisting a refractory sail or bending others to replace those blown away; or doing the routine seaman's job on deck. It is not all heavy weather stuff, for the pleasant life in the trades, and the wearisome days in the doldrums round out and complete this picture of a life that is rapidly passing — has already passed, in fact.

The author is a seaman himself. He lays no claim to being a photographer, or an artist. Yet what he "snapped" with a sailor's eye turned out to be the most complete and artistic set of sea pictures this reviewer has ever seen. In the reproduction William Morrow and Company have done a most creditable piece of work.

Those who saw Mr. Villiers' films last year on his voyage around Cape Horn in the *Grace Harwar* will want to see this book, while those so unfortunate as to miss those unusual pictures will find in *The Sea in Ships* a closer approach to a realization of the sailor's life on a Cape Horn voyage than is possible through any other medium.

Mutiny on the "Bounty"

By Charles Nordhoff and James Norman Hall

(Little, Brown and Company, 1932. $2.50)

EVERY yachtsman has heard of the mutiny on the *Bounty*. In the annals of the sea there is no story that makes a greater appeal to the imagination than this uprising of an ill-used and discontented crew, with the long voyage in an open boat made by Captain Bligh and a handful of his men, and the subsequent fate of the mutineers. Most of us, however, remember the incident hazily and are familiar with none of its details.

Now, for the first time, the true story of this remarkable mutiny has been incorporated into a novel which makes one of the outstanding contributions of the year to the literature of the sea. It is fitting, also, that the present story should have been written in Tahiti, the very island where the *Bounty* anchored in 1788, and where many of the events bearing on the mutiny took place. For the authors, Charles Nordhoff and James Norman Hall, after distinguished records with the Lafayette Flying Corps during the Great War, were not content to settle down to the humdrum of grubbing for a living in the United States, and, with a small capital, went to Tahiti to live and write and satisfy their souls. They have been there ever since.

Because the story is told in the manner of a novel, it is none the less accurate for that. Unusual effort was made to unearth all records bearing on the voyage of the *Bounty*, and the British Museum and the Admiralty were combed for details. Much was forthcoming, including the ship's log and the proceedings of the court martial on those of the mutineers who were finally captured. Every scrap of pertinent evidence was examined, so that nothing of the truth should be sacrificed. Even the rigging and deck plans of the *Bounty* were discovered, and the only regret (for a seafaring man) is that these were not included in the book. Around these facts the story was built. It follows the voyage and the happenings closely and gives an unbelievable picture of the hardships of sea life and of the brutality practiced in the Navy a hundred and forty years ago.

The book will, I think, satisfy the sailor as well as the layman. The authors have woven a gripping tale around one of the midshipmen of the *Bounty*, who later was a chieftain by adoption in Tahiti, a mutineer condemned to death, and a sea captain under Lord Nelson. It is a story one will enjoy reading — and one he will never forget.

H. L. S.

The Yachtsman's Modern Navigation and Practical Pilotage

By L. Luard

(Imray, Laurie, Norie & Wilson, Ltd. 1932. $2.00)

AN EXCELLENT book on practical pilotage and dead reckoning navigation for the yachtsman has been prepared by Lieut. L. Luard, which has an advantage over many other volumes on this subject by reason of its being written by a yachtsman for yachtsmen. The author will be remembered as the skipper of the British cutter *Maitenes II* in the last Transatlantic Race, 1931, and a participant in many Fastnet and other long distance ocean races.

Most textbooks on coastal, as well as celestial navigation, prove unsuitable for the novice because the subject is treated in complicated detail, and the methods of fixing the ship's position are of little use to the navigator of a small boat who must work in restricted space and under trying conditions. Rather, what is needed is moderate accuracy arrived at swiftly and by simple methods. These needs the author has constantly in mind and the book is, therefore, of particular value to the small boat sailor.

No attempt is made to cover celestial navigation, but every phase of coastal navigation is treated concisely, and in a way that anyone can understand and apply. The book can be recommended. As Lieut. Luard says, it will prevent the beginner from becoming lost in a labyrinth of theory and will encourage him to make a progressive study of more advanced books on navigation. Besides chapters on charts, buoy systems, the compass, etc., it shows how to obtain a fix by cross bearings, by lines of bearings, by sextant angles, etc., and there is an excellent chapter on the weather, and one on tides.

Peace Reigns in Motor Boating

(*Continued from page 62*)

been won by 15-year-old John B. Maypole, Jr., amateur of River Forest, Ill., with a total of 11,738 points, won in 32 races in 13 regattas. The Bay City events, however, made a number of changes in positions of the ten leading drivers. Instead of the line-up we predicted in the last issue, we find that, following Maypole, come the following outstanding drivers:

	Name	*City*	*Division*	*Points*
2.	Arrell Reinking	Indianapolis	II	8,811
3.	Horace Tennes	Chicago	I	7,424
4.	Jack Smith	Park Hills, Ky.	I	6,789
5.	Paul B. Sawyer, Jr.	Pocono Lake, Pa.	I	6,550
6.	Herman Wright	Lodi, Calif.	II	6,294
7.	Guy P. Ellsworth	Big Moose, N. Y.	I	6,193
8.	Art Jacobs	Chicago	I	6,101
9.	Sherman S. Crise	New York	II	4,813
10.	Jack Wood	Detroit	II	4,761

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Word has just been received that Gar Wood's record of 124.86 statute miles an hour with *Miss America X*, made at Algonac, Mich., on September 20th, has been recognized by the International Motor Yachting Union and thus is a true world's record. It figures out at 108.38 nautical miles and 200.90 kilometres.

Frederick L. Ames, Jr.

YACHTSMEN in general and cruising men in particular, will hear with regret of the death in an airplane accident of Frederick L. Ames, Jr., of Boston. "Freddie" Ames was a cheerful, adventurous, and distinctly likable chap who sailed boats and airplanes for sport and adventure. His schooner *Primrose IV* was a contestant in two Bermuda races, and in 1927 he sailed his black-hulled craft across the Atlantic, took second place in the strenuous Fastnet race against strong competition, and then sailed back home again, for which feat he was awarded the Blue Water Medal of the Cruising Club of America. But even blue water sailing palled on him, so he went into flying, and soon was acknowledged to be an expert at the controls, with several transcontinental trips to his credit. His death early in November, while at the stick of a borrowed plane, came as a distinct shock. He died "with his boots on," as he would have preferred.

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Building a 14-Foot Sailing Skiff

(*Continued from page 57*)

batten to the plank while boring for and driving screws.

When your planks are all fastened off, you will be ready for the ⅞" x 2" chines. These are slipped in between the plank and the notches in the molds, referred to in a previous paragraph. Use all the clamps you can get for this job, to be sure of the fit at each end and to have it up, wood and wood, the whole length before driving in the 1¼" No. 9 screws, four inches apart. Stagger the screws a little and do not let them come too near the edge of the plank, which will now have to be faired up.

The next step is to bevel your plank and chines together, from chine to chine, using a long plane and a straight edge. This fairing process takes in the stem and transom, as well, and before you leave this job, take off 1/16-inch chamfer all around the outside corners to form the outgauge for the chine caulking seam.

Now fit in the 1" x 6" oak keelson by notching the molds so that it will lie down flush, both with the molds and with the transom and stem. Make a line across at Section III; this will be your index to the location of the centerboard slot. This differs according to the rig you choose for the boat. For a jib and mainsail rig, square a line across the keelson 2" forward of Section III; this will be the forward end of the slot for the box, which is 2' long and 3" wide. For a cat rig, put the forward end of the slot 17" forward of Section III (Fig. 7). Remove the keelson to cut the slot, and in putting back to fasten permanently see that both section marks register. It would be best to make the centerboard box first, and take the finished measurements from *that*.

Planking the bottom is the best part of the job and should receive the most care. The planks are fastened down with the 1¾" No. 10 screws. Start square across at the center mold. Let the ends of the boards stick over a little at each end for future trimming. For the boring line make a marking gauge out of half-inch stock (Fig. 8). This not only gives the center line of the chine, but the angle of the drill hole as well, with the smallest chance of error. When laying the bottom, joint the edges fair and square, not forgetting the outgauge on the outside edges. Wedge or clamp the boards before fastening so that light cannot be seen through the inside of the seam. To accomplish this, you will be doing something.

It should not take more than the twisted strand of the cotton wicking to caulk the bottom and chine seams. To do this well is largely a matter of instinct and practice, hard to describe, but no doubt by this time you have gathered an eyeful at some shipyard when the mallets were ringing. To me there is no sea-music like that. You had better provide yourself with a small, thin iron which can be purchased with the cotton wicking. Any small mallet will do, but be sure to hammer the cotton in hard enough to leave space for the priming coat of paint and the putty. You are now ready to turn the boat over and have the first good look at what you have been doing. Put temporary braces across the gunwales, remove the molds, and fit in and fasten side timbers with 1¼" No. 10 screws. The risers to hold up thwarts are fastened with 1¼" No. 8 screws. These last are not put in until you have installed the centerboard box (Fig. 9), which is the next big job.

Materials Needed for Fourteen-Foot Skiff

Stock for molds	Pine	Three pieces	⅞" x 4" x 12'
Side planking	Pine	Four pieces	½" x 12" x 16'
Washboard	Pine	Four pieces	½" x 12" x 12'
Bottom plank	Pine	Six pieces	⅞" x 8" x 12'
Thwarts	Pine	Two pieces	⅞" x 9" x 10'
Transom	Oak	One piece	⅞" x 18" x 4'
Centerboard box	Oak	One piece	⅞" x 14" x 4'
C. B. box posts	Oak	One piece	1¼" x 2" x 4'
Centerboard	Oak	One piece	⅞" x 16" x 4'
Keelson	Oak	One piece	⅞" x 8" x 16'
Stem	Oak	One piece	2" x 4" x 3'
Chines	Oak	Two pieces	⅞" x 2" x 16'
Seam battens	Oak	Two	½" x 2" x 16'
Half-round battens	Oak	Two pieces	¾" x 1¼" x 16'
Side timbers and cleats	Oak	Three pieces	⅞" x 2" x 12'
Rudder	Oak	One piece	⅞" x 13" x 3'

For the transom, centerboard box, and thwarts, as well as the rudder, mahogany may be substituted for oak. Cedar, cypress or whitewood may be used in place of the pine.

For brass screws get: 1 gross 1¼" No. 8; 2 gross 1¾" No. 10; 2 gross ¾" No. 8; 1 gross 2" No. 10; 1 gross 1¼" No. 9.

The sides of the centerboard box are 2' long by 14" wide. The posts are 1¼" thick and 2" wide. First, tack the boards to the posts with brads, clamp the box in the vise and block off the ends square. The squared edges can be used as a register when you come to fasten off. To make the box, fasten the side boards to the posts with white lead and wicking between, as shown in Fig. 10. Do this by first placing the two posts on the bench, flatwise, and near each edge of the post embed a strand of wicking in white lead. Then lay one of the side boards on these and tack in place with brads until you drive in the screws. When fastened on one side, do likewise with the other side. Notch the ends of the posts half an inch from the ends of the box, as shown in Fig. 9. Cut a slot in the bottom of the boat 1¼" wide, and in length, just the distance between the shoulders of these notches, so that the ends of the posts will slip through. Try the box in before starting to fasten, lay in a coating of white lead all around, bottom and sides, where the box is going to go. Then lay a double strand of cotton wicking, also embedded in white lead, around both edges of the box, keeping them as near the corners as possible (Fig. 11).

For a clamp to hold the box in place while fastening off, get a couple of ⅜" iron rods, about 18" long, and have a rather long thread run on each end, with nuts and washers to fit. Set up the clamps in each end of the slot (Fig. 11), and tighten up on the nuts until the white lead squashes out. Then you know that you are again doing something. Turn the boat bottom up once more and you will find that you can drive in the screws without disturbing the cotton wicking or winding it up. The lay-off of the rudder is shown in Fig. 12. It is fitted with regular gudgeons and rudder braces.

A square hole in the keelson will do for the mast step.

Left. "Yawlcat," a new 55-foot auxiliary centerboarder, was designed and built by the Herreshoff Mfg. Co., for cruising on the inland waterways as well as off shore. She is powered with an 80 h.p. Chrysler engine, giving a speed of better than 10 miles

Right. "Pinafore," a smart auxiliary cruising schooner, was designed by John G. Alden, of Boston. She is 43 feet overall with a beam of 12 feet and a draft of 6 feet 4 inches. Ample power is provided by a Scripps Model F-4

Of Interest to the Skipper

Morgan New President of Kermath

FRED C. MORGAN, vice president and assistant general manager of the Kermath Manufacturing Company of Detroit, has just been appointed president and general manager to fill the office left vacant by the death of John B. Farr.

Mr. Morgan has been associated with the Kermath Manufacturing Company, of Detroit, for fifteen years and became assistant general manager some ten years ago. As such, he aided in shaping the highly successful policies of Kermath and his knowledge of marine engineering was directed to the designing and manufacture of the Kermath line of marine engines.

The policies which have previously shaped the destinies of the Kermath Manufacturing Company will be continued without change in present plant personnel or dealer policy. A new sales manager will shortly be announced by Mr. Morgan, who will assume full charge of Kermath sales both in this country and abroad.

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Diesel Course Offered

What is considered the first Diesel Correspondence Course is being offered by the Industrial Institute, 901 Bergen Avenue, Jersey City, well-known publishers of *Diesel Reference Guide & Directory, Diesel & Oil Engineering Hand Book*, and other popular Diesel books.

The course, which is in twelve lessons, spread over a period of one year, and along practical lines, is under direct supervision of Julius Rosbloom, a recognized authority on Diesel engineering. Mr. Rosbloom has been an outstanding educator on Diesel subjects for many years, and his supervision of the work is a fortunate circumstance.

International Dinghies

The Skaneateles Boat & Canoe Co., of Skaneateles, N. Y., builders of high grade boats since 1893, are now prepared to take and fill orders for the International 14-foot sailing dinghies which they are building as a stock boat. Due to the recent and growing demand for this well-known little boat, this company has developed a stock 14-footer which it is prepared to produce in quantity and therefore at stock prices.

The 14-footer built by the Skaneateles Boat & Canoe Co., is a round-bottomed, clinker-built, non-sinkable boat, planked with cedar, trimmed with mahogany, with natural finish inside and out. The mast is hollow and all spars are of spruce. Wamsutta Duck sails made by Cousens and Pratt are provided. Specifications and prices may be obtained by writing to the above address.

Portland Yacht Service, Inc., Offers New Facilities

The Portland Yacht Service, Inc., of South Portland, Maine, has recently procured as a yacht yard and wet basin 36,000 square feet of graded land and 112,000 square feet of submerged land from the Portland Shipbuilding Company. The basin, which will be completely enclosed by piling and planking, will be approximately 250 by 550 feet.

The Portland Yacht Service is equipped to handle all yachts up to twelve feet draft and 900 tons weight. The Crandall Engineering Co., has installed a 30-ton marine railway. The Portland Shipbuilding Co., which has an established reputation in the East for thorough and excellent work, operates two railways of 250 and 900 tons respectively. An agreement with this company allows the use of their plant facilities and their men whose experience qualifies them for all types of hull conditioning, interior cabinet work, and rigging. A fireproof shed, 50 by 90 feet, is provided for undercover storage and will house sail lockers and personal lockers on the second floor.

Summer facilities offer a complete fueling plant, a ship chandler's display shop which will deliver hardware, provisions and water direct to boats, moorings in the basin free of charge, a lounge and modern conveniences for customers, and passenger boat service to the yacht club, half a mile across the harbor.

In short, Portland Yacht Service, Inc., offers every facility for winter storage, repair, and summer cruising. The yard is within ten minutes' walk of the railroad station.

(*Continued on page 87*)

An a.c.f. 50-foot cruiser being loaded for shipment to Turkey where she will be used by the American Ambassador. A 275 h.p. Hall-Scott Invader gives her a speed of 19 miles per hour

A Portable Ice Yacht

(*Continued from page 43*)

side are each in a single length. Below the eye of the masthead whift they are to be lashed together with cord and shellacked, or with wire and soldered; they must not slip on each other. All other stays are single lengths. The stays may be set up by turnbuckles, as shown, but it is less expensive, and just as efficient to set them up with tarred marlin lanyards through thimbles. They are so shown on the sail plan.

Whifts:—(For attaching the halliard block to the yard.) A metal whift should not be used, for the position of the block may need to be shifted slightly from the place shown on the sail plan, though this is closely approximated. A trial hoisting of the sail will prove whether it sets correctly. A rope whift is neat, efficient, and lasting. A rope ring is made of tarred marlin, in 5 strands. Pass each strand through the eye of the block when laying, and when the ring is complete it will be through the eye of the block. Serve it with waxed sail twine, used double, and then lash it together close to the eye of the block; finish by giving a coat of shellac, and varnish. In my boat, the sheet blocks on the booms, and the down-haul deadeye, were rigged in this way, and they showed no deterioration.

For the tack down-haul, the smallest size deadeye — or even a brass thimble — is better than a block, as it holds the boom closer to the mast. Do not put a jaw on the boom, but rig it as shown on the plans. Put tan leather around the boom and yard where they bear against the mast, to prevent scuffing.

Sheets: To be of ¼" cotton rope. Instead of a ring to run on the main sheet traveler, use a marine snap-hook. This, when the sail is lowered, can be loosed from the traveler in an instant, and the sheet used for tying up the sail after it has been furled. A snap-hook is also used at the end of the short rope pendant attached to the jibboom, and one at the head of the jib. The one on the jibboom snaps into the eye of the block which runs on the traveler part of the jib sheet, as shown. One end of the jib sheet is to be spliced to the port screw-eye shown on the fore edge of the runner plank; thence it goes through the block and up through the starboard screw-eye and to the cleat on the keel, in the cockpit. The plans show clearly how the sheets are rigged. This method of rigging the sheet is simpler and more efficient than using a short iron traveler forward of the mast, through a block on the boom, forward through another block, and belayed to a cleat on the bowsprit. As rigged in the plan, when the sail is at the correct angle, the boom is held down and the sail is flatter. It is particularly effective in strong winds. Another advantage is that the bowsprit, from end to end, is clear of traveler, blocks, cleat and sheet-rope. The main sheet rigging is clearly shown on the plans.

Main Halliard: The halliards to be ¼" cotton rope. The block on the mast is a 2-eyed single one, and is shackled to the port eye of the masthead whift.

The halliard goes down the port side of sail, through a fairlead on mast bench, to the after cleat on the side of keel. One halliard is all that is needed to raise the sail. To set, slack the down-haul, hoist on the halliard until the boom is somewhat higher on the mast than shown, and belay; then bear down on the boom at the deadeye while hauling the down-haul taut, and belay.

Jib: The jib halliard is rigged through blocks in the same way as the main.

The hook on the tack of the jib is snapped through the upper eye of the whift on the bowsprit; the one on the head snaps through the eye of the block on the halliard. The fairlead and the cleat are shown on plans.

The jib is set up on its own luff — flying, as it is called. So set, the jib can be hoisted more quickly, and can be removed by unsnapping three hooks. In reefing (you will need to reef at times) the leach is tied to the end of the boom, the luff earring lashed around the boom and through eye of whift on end of bowsprit.

Battens: Make these of pine, spruce, or cedar, to be 1" wide and ⅝" thick; taper them somewhat to the ends; they go in pockets that are sewed across the sail on the starboard side (see sail plan) and are held to the mast by parrals. These are to be made of cotton rope of 3/16" diameter. They extend from the fore ends of the battens, around the starboard side of the mast, and go around the battens — through grommets in the sail — about 18" abaft the mast. Tie them, so that they can be slacked when the mast is to be lowered and the sail furled, and lashed with the mast for carrying. Their purpose is to hold the battens close to the mast. A parral is on the yard also.

Sails

The sails should be flat, with no draft to the luff, as with a racing yacht in the water. The conditions in ice sailing are very different, the yacht being sailed close-hauled in all directions of wind, and the sheets being merely eased a bit in strong winds. With the wind on the quarter, where an ice yacht attains her greatest speed, the luff of the sail is really the leach, as the wind strikes the sail at the after edge first. When going down wind at an angle to its direction, the yacht is always in new wind, and she then reaches a speed which draws the wind ahead. To one in the cockpit, the breeze feels as if it were coming over the bowsprit, and the masthead pennant will point aft. The lug sail, with its unobstructed run-off of air forward, particularly when on the port reach, is calculated to bring out the highest speed.

As the sails are the motor, take great care in the making. They are to be made of light duck, or unbleached drilling, a yard wide, and to be single bighted, that is, the material is folded on itself along the middle to form a seam ¾" wide, the same width as the selvage seam. "Bight" the material before cutting out; baste the bights with strong thread, and sew on the machine close to the edges, with No. 10 or No. 12 thread.

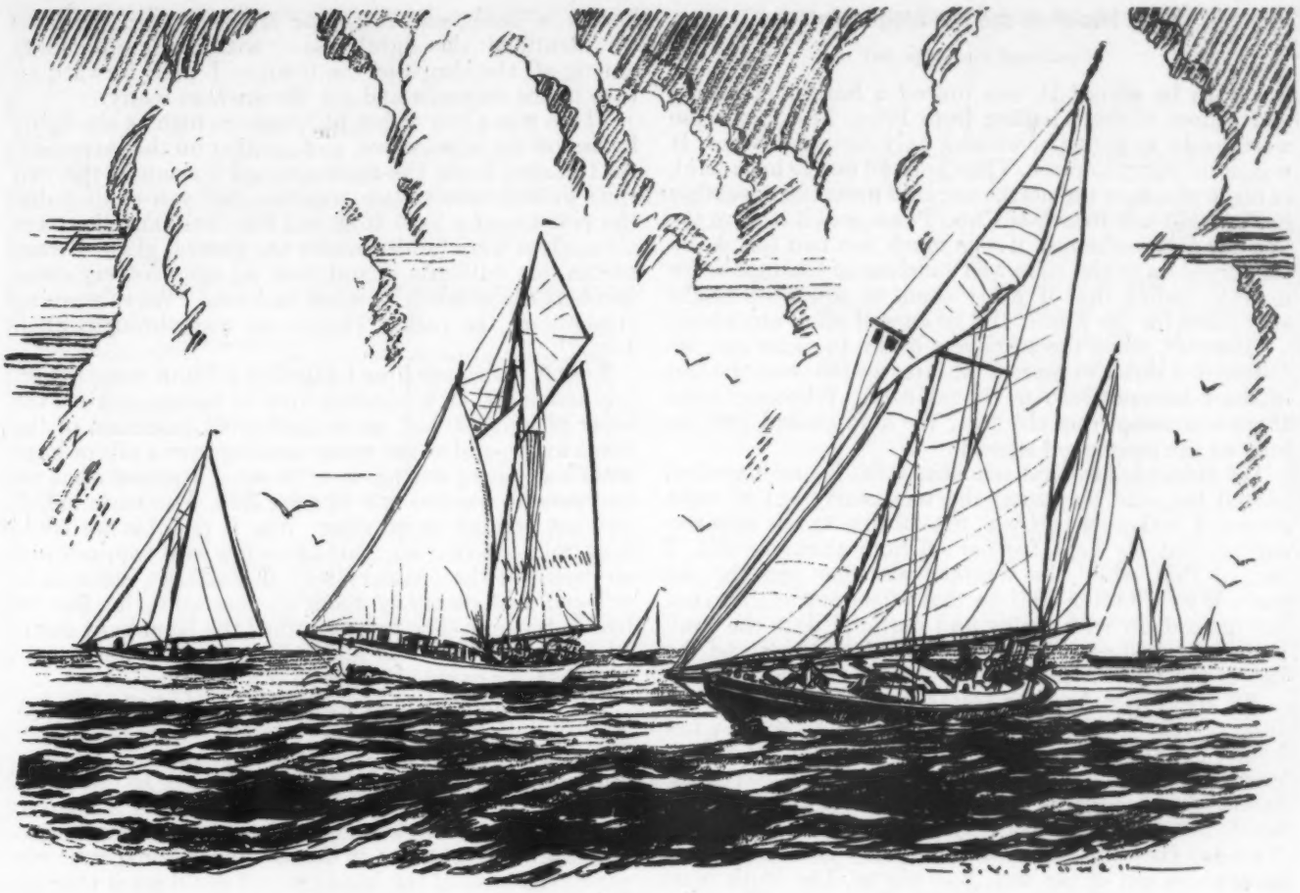
Three sides of the mainsail, and the luff of the jib, are cut on the bias, and care is needed in order to avoid stretching out of shape when sewing the hem. This is 1" in width, and should first be basted with strong thread. Corner pieces (see sail plan) are to be fitted under the hem before that is sewed.

A ¼" tarred hemp bolt-rope is to be sewed around each sail, except along the leach. Sew with waxed sail twine, double; use a sail needle and a palm thimble to push it. Sew each strand of the rope. It should go on the port side of the sail. Serve the ends, which should extend about 6" on the leach, at head and foot. Grommets (or eyelets) are to be worked along the foot of both sails, and the head of the mainsail, to attach to spars; also along the pockets, where shown, for the reef points.

Handling

In handling the yacht, the sheets are kept belayed when the best angle of the booms is found by practice, and they seldom need to be touched during a day's sailing, on any course, by or off the wind. As the booms are never square off, long sheet ropes are not necessary.

Keep the boat housed (or covered) when not sailing. It is exasperating, and time wasting, to find sails and rigging frozen solidly, and to the hull. It does not improve the varnish to have to chop frozen slush from the cockpit.



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A Month in the Mediterranean

(*Continued from page 35*)

it out to be seven! It was indeed a harbor of sailing craft, most of them hailing from Iviza. Many of these were ready to go back, waiting only for a fair wind. It was in no hurry to come. They pointed out to me a bank of black clouds in the northeast; that meant bad weather in the bight northward of Cabo Palos, and if it were too bad for a big schooner it was much too bad for us. So we stayed on in the calm and sunshine of Cartagena for a week, feeling that if worst came to worst we might stay there for the winter and be as well off as anywhere.

However, when the schooners began to move out, we followed. I think we were a bit late; we followed the last of the schooners into a virtual calm. Whatever wind there was came from the east. We didn't mind that, as long as the sea stayed smooth.

We didn't follow that schooner long. By noon we had passed her, and by sunset she was nearly out of sight astern. I reckoned this was not all due to our superior sailing, but we kept further offshore than she did. I judged that while the weather was fine and the sea smooth we'd better hold on that offshore tack, and not get messed up with calms and currents near the land; and we carried on till we had sunk Cabo Palos and the last of the Spanish hills.

We spent days here, or hereabouts. At times we'd get tired of that head sea, and try the port tack for a few hours, but though we did some nice sailing that way it was getting us no nearer the islands. We had gales, calms, thunderstorms, and even an hour of northwest wind, but nothing made any difference to that swell. Two days before Christmas we felt it was time to get in somewhere out of the wet. But where? The truth must be told, we were fairly lost. A discrepancy of fifty miles between two sets of sights shook my faith in the efficacy of navigation from a small boat in bad weather — the sort of weather when it would be foolish to run in for a lee shore from a position of which we were uncertain.

It looked as if we would have to eat our Christmas dinner at sea. I studied my fool navigation again, in case I could track down my mistake. And then I had an inspiration. Those incongruous sights were some of stars and some of the sun. Suppose we had somehow slipped up on our calendar dates? Suppose it were not two, but three days to Christmas?

A crescent moon peeped through one rift in the clouds, Venus through another. The moon was the mariner's clock before chronometers were invented. We didn't ask her for the time any closer than the nearest day, but she was quite definite about that. It was only the twenty-second. That discrepancy vanished; we knew where we were, and had plenty of time to find a harbor.

We let the ship go in good and hard for the Spanish land, with the close reef in the mainsail. Was it only because we didn't care where we made our landfall (I had no pride left, and was going to steer for the nearest port to leeward, whatever it might be) and so sailed a real full, that the swell seemed easier and we didn't make so much leeway? Anyway, we made the land well to the north of Cabo Palos; and then the wind began to free. Alicante was our port. We couldn't see much through the rain squalls, but we were soon in the steamboat track, and that gave us a safe course.

The sun would be down, and I don't like making strange harbors at night with that much wind; but it wouldn't be dark; the moon would be well up, and the sky was clearing. And it looked an easy harbor on the chart; we'd only to pick out the light on the end of the breakwater. Once 'round that we'd be in smooth water and could look for a berth at our leisure. But the inner harbor is small, and might be crowded, so as soon as we identified the lighthouse — with some difficulty, among all the lamps of the town — I went forward to take in the staysails and get the anchors ready.

There was a row of bright lamps, as high as the lighthouse, on the breakwater, and another on the inner pier. As I hauled down the main staysail I thought the two rows looked rather close together, but you can't judge the position of a light from our low deck, and the piers themselves were hidden under the general glare. I went to the fore halliards — and then an agonized cry came through the howling of wind and sea. "We're running straight on the rocks! There's no way through. Shall I luff?"

I don't know how long I gaped at a Titan crane towering above us, at a blinding row of lamps, not on the inner pier at all, but on an uncharted extension of the breakwater, and at the spray dashing over a pile of huge blocks all along our lee bow. When I realized what we had done it was too late to wear ship. The mate luffed, but not enough to go clear. Was it possible we could stay 'round in that sea, with those few sails trimmed just anyhow? In the ordinary way, I shouldn't attempt it, unless I had plenty of room to miss stays in. But we had to try now. The mate jammed the helm hard down, while I rounded in the main sheet for all I was worth; and then we could only pray for a miracle.

By the time the ship was head to wind she had lost all way, but as she was driven astern the reversed helm just canted her. Would she start sailing again in time? She fell off and off, hurled closer and closer to the breakwater — no smooth wall that might make a friendly backwash, but a broken face of boulders over which the seas spent themselves in foam. The Titan crane rose above the head of the mainsail — I could see it over the main truck; and then at last the ship gathered way. The miracle had happened!

She sailed swiftly past those deceptive lamps, and past a quarter of a mile of unlit construction work. We had to go full half a mile from the lighthouse before we could bear away clear of all dangers. But we got safely into Alicante, after a week at sea — and it's no more than 70 miles, on fair navigable courses, from Cartagena!

You might suppose that awful week, and the narrow shave that finished it, sickened us of winter yachting in the Mediterranean. Well, we didn't leave Alicante that year, but we found it, as a permanent residence, too pretentious a place for our modest tastes. So when the New Year promised us a slant of wind, we took it. And as a reward we had an entirely pleasant and uneventful passage to that port which seems the ideal for laying up a yacht. Everywhere in Spain they understand the needs of yachts, but in Iviza they understand the neediness of yachtsmen!

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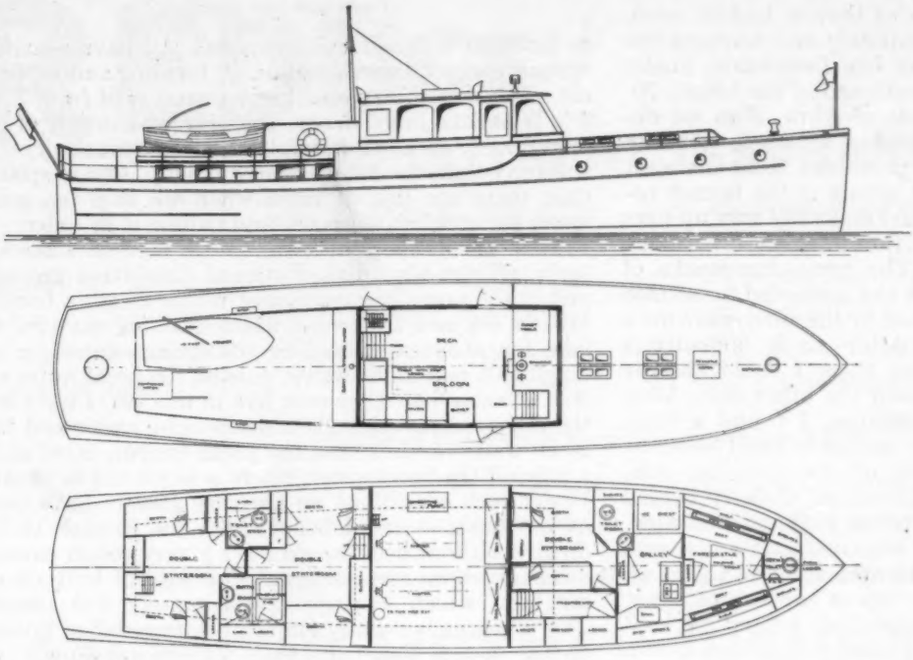
Cruising in Patagonia

(*Continued from page 26*)

and we knew that the hook would either drag, or else become securely and permanently fastened, endangering our safety. At 11:30 P.M., "Sparks" received an S.O.S.; at first it was so ragged that the name was not clear, but because it was coming from an old spark-gap set, we feared for the *Antarctica*. We were correct. She had foundered on the rocks some hundred miles from our position, which made it useless for us to try and run to her assistance. That was the last we heard from her, and it brought home to us the sinister character of this inhospitable land.

The following morning the wind shifted to our disadvantage, but soon died. Immediately it began to snow



A 60-Foot Power Cruiser

A glance at the drawings will reveal the astonishing accommodations of our 60′ x 13′ twenty mile per hour power cruiser, consisting of 3 double staterooms, deck cabin, owner's toilets, bath, two 200 h.p. motors, roomy galley, and comfortable quarters for two or three men. We can reproduce this boat, completely equipped, double planked with mahogany, teak decks, a high grade job throughout, for $25,000.

Naval Architect **John G. Alden** *Yacht Broker*

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"Very satisfactory"

Mrs. Ernest L. Copeland, owner of the championship Triangle boat "Periwinkle", has used Wamsutta Duck for the last eight years. She says it is "very satisfactory."

One of the particularly satisfactory things about Wamsutta Yacht Duck is the way it holds its shape. Its strength is remarkable especially for a duck which makes such pliant, efficient sails.

PERIWINKLE, owned by
Mrs. Ernest L. Copeland
Sails by Cousens & Pratt

WAMSUTTA MILLS, New Bedford, Mass.
Howe & Bainbridge, 220 Commercial St., Boston
Geo. B. Carpenter & Co., 440 N. Wells St., Chicago

WAMSUTTA YACHT DUCK

MADE IN AMERICA FOR AMERICAN YACHTS

heavily and visibility was so bad that we did not leave Churruca. By eleven o'clock the snowstorm ceased and the ceiling became much lighter than it had in many days. We left Churruca immediately and retraced our course back along the shore of Isla Desolation, finally entering Canal Abra at the south end of the island. No sooner had we anchored inside of Abra, than we observed a column of smoke issuing from the opposite side of a point of land that protruded from the west shore. I took a rifle and went ashore in the launch behind the point, thinking I would make my way up over the top and look down. I found the scraggly growth along shore almost impenetrable. The great hummocks of green, wet moss, together with the contorted forms into which the trees had been twisted by the wind, gave me a strange sense of unreality. After much difficulty I reached the summit, but from there I could observe very little, so I continued down the other side. After descending about half the distance, I found a trail. There, at the foot of the slope, was a fire, but I heard no sound save the gentle falling of the sleet-like rain. Suddenly I came out upon the shore, directly behind two Alacalufe *yurts* between which a fire was burning. One look, and I might have retreated had not a wild scream, directly behind me, frightened me so that I almost leaped straight out on top of the nearest *yurt*. Moreover, the "hefty" Alacalufe lady behind me kept up her wild shrieking until I was surrounded by the most savage looking crowd of people I have ever encountered. Most of the children were absolutely naked, and the grown people might as well have been, for the remnant of hides which they wore failed to achieve any degree of privacy for their persons, or to effect a protection from the weather. They seemed not to talk, but merely to keep up a monotone quacking.

My gun was seized and the old man of the crowd pointed at me, holding up one finger. Finally I concluded that he was asking whether I was alone. By this time I was thoroughly frightened and began making signals with my fingers to show that there were great numbers up on the hill. As soon as he had grasped this idea, the old man tore my gun from the grasp of the younger men and returned it to me.

I offered the women trinkets, at which they took one look and dropped into the mud. I fired twice, always our signal for help, and the boys came around in the launch for me. The Alacalufes became more excited than ever when they beheld the mahogany launch. A large catch of fish had been made during the afternoon and many were still in the launch; these were given to the savages, and how they did go after them! One old fellow did not wait for the cooking, but bit right into the entrails of a raw fish, actually registering signs of relish as he choked it down without much chewing.

The following morning we pulled our hooks and departed for Smythe Channel, which leads on north to a series of channels by which one may continue for a considerable distance along the west coast of Chile on an inland passage. Many of these are treacherous, however, and none but an expert navigator should attempt those to the north of Smythe Channel. Bad weather continued to follow us north and after we left the shelter of the channels we found the open sea anything but comfortable. For two days and nights a southeast gale from the Horn drove huge combers before it, which continually broke over the stern rail. The weather seemed so thoroughly anxious to impress us with its might, that we experienced a snowstorm the last night before we got into Valparaiso.

In conclusion, let me say that in all my voyages — and I have made many — never have I found a land more fickle, more interesting or desolate, more weird and magnificent, more grand or terrible.

The Canadian 14-Foot Dinghy

(*Continued from page 44*)

as far as 5′ 6″ abaft the stem post. All have coamings around cockpit approximately 2″ forward and tapering aft to an inch. The decks have a camber of from 3″ to 6″. With our large decks, coaming and depth of approximately 18″, we certainly should be much dryer in a seaway than the International dinghy. But in spite of this, there are lots of races when we ship too much water for comfort or speed, and bailing is in order.

Most of our races at Toronto are held on Lake Ontario, off the Canadian National Exhibition grounds, and in the prevailing southwest winds we get a horrible broken sea and backwash which extends out into the lake for about a mile. The triangular course for the dinghies is laid immediately outside the breakwater and it is amazing how they ever live in this sea. I have seen the eight-metres stick their noses right under and take green water on deck, and the yacht triangle is set about a mile off the breakwater, where seas are not so broken. Under such conditions we are very glad to have decks on our boats — and I believe that the English 14-foot dinghy without deck would have a very rough passage.

There are no restrictions as to weight of hulls on our dinghies, which average approximately 180 pounds. The planking is usually Ontario white cedar or Spanish cedar, copper fastened. Our centerboards must not exceed 50 pounds. Quite a few are aluminum, weighing approximately 15 pounds, while others are of streamlined oak, weighing about the same. We have had, also, adjustable boards after Dr. Curry's style, but these are now barred.

All our racing dinghies are Marconi rigged, with maximum sail area of 140 square feet. Some have curved spars, but the majority are straight, with round or pear-shaped sections, as the curved spar is now barred from racing. We have booms of all shapes and sizes — T's right-side-up and up-side-down, rectangular, V's, pear-shaped, planks on edge, and some like the famous *Enterprise* boom. It is interesting to note that a boom like that of the *Enterprise* was used by Mr. Dingwall, of Toronto, on his racing dinghy in 1929 — one year before the *Enterprise* boom made history.

On the Canadian dinghy there is no restriction as to sheer line, and the latest dinghies show a line which is almost straight, but looks hogged at a point about three feet abaft of stem post. This sheer line helps to keep water off the deck where seas break. Our waterline is hollow forward, similar to that in yachts developed under the Universal Rule — with the result that the forward sections are almost V-shaped, with a decided flare at the deck.

One of our latest dinghies is sloop-rigged and uses the jib as a spinnaker, when off the wind. The jib is set flying, with tack attached to a small boom, the forward end of which is, in turn, purchased down to the deck and has a guy on either side. To use the jib as a spinnaker, the purchase is released and the guy hauled aft, which then becomes the after-guy, and the purchase may be used as a fore-guy. This arrangement is very simple.

The cost of our modern racing dinghy, equipped with the best racing sails, averages approximately $375. The English dinghy costs £150 — approximately $750.

In conclusion, I do not see that we are outclassed to the extent that Mr. Pout would have us believe. Our hull and rig are in keeping with modern design and our speeds compare favorably with those given by Mr. Pout for the International dinghy.

It is rather futile, however, to compare the speeds of sailing boats on paper. There is only *one* conclusive way. You've guessed it!

REDUCE
YOUR YACHT INSURANCE COSTS

For ninety years, large shipowners have protected themselves against loss or damage by insuring with the Atlantic Mutual Insurance Company, thereby effecting substantial savings, as dividends of profit are paid to policyholders instead of stockholders.

Now it is possible for yacht owners to economize in precisely the same way. The Company has insured property to the value of over 41 Billion Dollars, has returned dividends to policyholders of over 115 Million Dollars, and its reputation, financial strength and record of settlement are internationally known.

(Latest Dividend to policyholders 15%)

ATLANTIC MUTUAL POLICIES ARE NON-ASSESSABLE
ATLANTIC MUTUAL PROFITS REVERT TO THE INSURED

Inquire direct or through your broker or agent, or our nearest office.

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49-51 Wall Street (Atlantic Bldg.) New York

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INSTANT STARTING *and* quick manoeuvring at varying loads

TWENTY-FOUR years ago, Charles M. Fauci began to supply fuel oil to the marine trade in Boston. He was the pioneer. Today the Fauci Oil Company organization operates eight boats, and supplies fuel oil to the great majority of yachts and commercial vessels in this section. His boats are well known to Boston, Marblehead, and New England yachtsmen and commercial vessels.

Mr. Fauci uses the Murray & Tregurtha engine that starts and runs on fuel oil using the Shore carburetor-manifold system. In his own words: "I wouldn't want a better running engine . . . it is absolutely dependable . . . our service calls for many quick starts, fast manoeuvring and sudden changes of speed, no load to full load . . . it is an abusive type of work . . . the engine is a neat, simple job without complications . . . the boat carries 6,000 gallons of fuel oil at 10½ miles or better . . . there is no vibration, no smoke, no fire hazard . . . it is economical to run. . . . I am completely satisfied."

MURRAY & TREGURTHA INC.
NORTH QUINCY, MASS

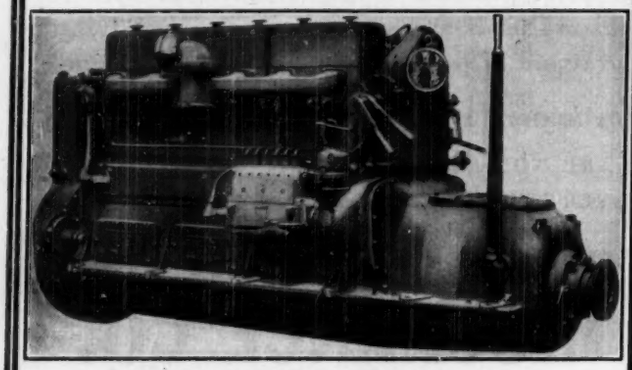
BUDA—M.A.N.

"Shock Absorber Head"

Marine Diesel

6 cylinders . . . 5¼ x 7

104 H.P. at 1200 R.P.M., 125 H.P. at 1500 R.P.M. at 75 lbs. B.M.E.P.



Model DM-6-17, Furnished with or without Reduction Gear; Electrically Started

"Splendid Pickup and Deceleration Without Smoke or Clogging"

We quote from a letter recently received from Humphreys Yacht Construction Co., Keyport, N. J., designers and builders of Diesel yachts, after their president, Mr. N. B. Wolcott, had been given a demonstration in the 46 ft. cruiser "Souris," powered by a Buda DM-6-17:

"I want to tell you how favorably impressed I was with this demonstration. In the case of the "Souris," the placing of any Diesel engine would be extremely difficult because of her unusual sharp design and lack of buoyancy at this point. I know of no other Diesel which could possibly be installed due to the excessive weights. I was particularly impressed by the lack of noise in the motor when running at various speeds from idling to 1300 R.P.M. The splendid pickup and deceleration without the usual smoke or clogging is also a very remarkable advance and you are to be congratulated upon this same feature when operating at standard speeds, as under those conditions there was absolutely neither smoke nor odor of any kind. In view of the imperative necessity for lighter weights in power units approximating 100 H.P., it would seem that this newest and latest Buda would have a special appeal to the smaller yacht owner and I sincerely believe you will have a wonderful success when the fine points of this engine are better known."

Let us tell you more about the simplicity and the many interesting features of this engine, particularly the "*Shock Absorber Head.*"

For further particulars:

Write for Bulletin No. 771-A

THE BUDA COMPANY

Established 1881

Harvey (Chicago Suburb) Illinois

30 Church Street New York

"Carrie-Fin"

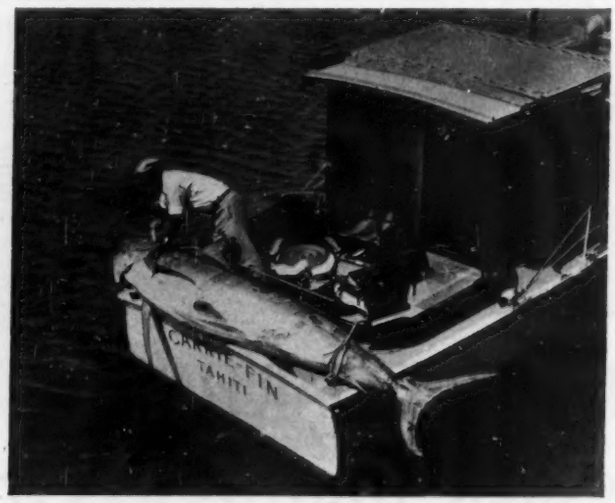
(*Continued from page 40*)

builder. This particular type of bottom tends to make the craft steadier in rough weather. She is equipped with twin 50 h.p. medium duty Red Wing engines. In the cockpit are two "Major-made" revolving fishing chairs, and under the floor of the self-bailing cockpit are two 60-gallon tanks, filled through openings flush with the floor, giving the launch a cruising radius of about 200 miles. There is a space two feet wide at the stern, in which is built a tank for live bait, through which water runs. This is operated by a small pump attached to one of the motors and is an important feature in a fishing boat, as it keeps the bait alive and fresh. There are no built-in seats or lockers in the cockpit. With the exception of the two fishing chairs, it is a big open space, affording plenty of room for the activities necessary in the landing of big fish.

Just forward of the cockpit, and separated from it by double doors which open outward and hook back, is the main cabin. This is seven and one-half feet long and has a wide berth on either side, made comfortable by thick kapok mattresses which would serve as life rafts in an emergency. In the center is a table with folding leaves.

Forward of the main cabin, and separated by two doors, each with a mirror set in, is the engine room. Here, one on either side, are installed the motors. Forward of the port engine is the toilet and in the bow two bunks are built in for the native crew. There is no galley, the remaining space being taken up with extra fishing gear, anchors, life jackets and other ship's gear.

I chose medium duty engines because they are more suitable for a fishing boat in these waters. The New Zealand builders were particularly anxious to put in



The cockpit of the "Carrie-Fin," showing top thrown back over pilothouse to give free play for the rods

high speed engines and I discovered, during a fishing trip in New Zealand, the reason for this. There, the launches are obliged to run 15 or 20 miles to get to the fishing grounds. Naturally they want speed to go and return. Once on the spot, they use their engines very little, since most of the fishing is done from a drifting boat. Here in Tahiti one may fish successfully only one or two miles off the reef, and we troll, running the engines at 400 to 500 r.p.m. for seven and eight hours a day. Consequently, there is no need for speed, and a medium duty engine functions better at a low speed over a long space of time in tropical waters than one of high speed.

Arrangements for building this boat were made

Known in every port—

NOT only in the United States will you find HYDE Propellers on sale in every boating center, but in practically every port in the civilized world there is a dealer who represents HYDE. From the Scandinavian Peninsula to sunny Italy, in Rangoon, Auckland, Buenos Aires, Cape Town, the far-away Fiji Islands — in fact wherever you find motor driven craft, there you will find HYDE Propellers rendering the service that has made them known in every port.

Such universal usage is not the result of chance, but is built solely on merit. HYDE is not only the leader in the United States, but is recognized as the ultimate propeller the world over.

The name of the HYDE dealer in your locality, whether it is in the United States or a foreign country, will be furnished on request.

There is a copy of the booklet "Propeller Efficiency" for you if you will drop us a postal with your name and address on it

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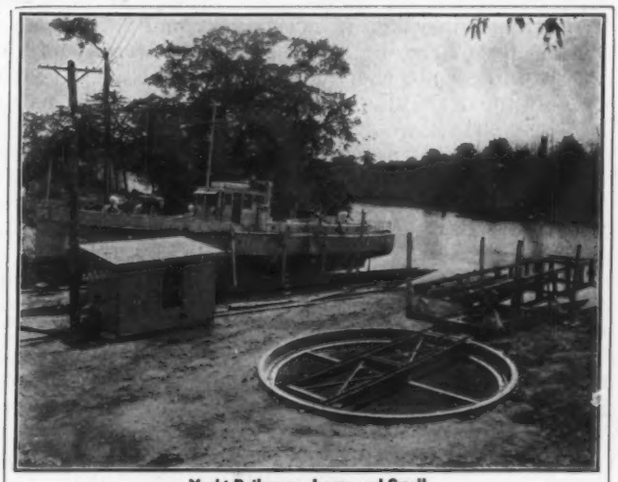
HYDE WINDLASS CO.

Bath, Maine

3000 Hyde Propellers and a large stock of Shafting and Fittings ready for immediate delivery are carried by C. R. Andrews, 143 Chambers Street, New York City. Telephone BArclay 7-1873



Yacht Railways—Large and Small
U. S. Coast Guard, Curtis Bay, Maryland

Money invested in a Crandall Yacht Railway is well spent because its adequacy of design insures long life, economical operation and minimum depreciation.

Yachtsmen and yacht-yard owners: Let us study your requirements and we shall be glad, without obligation on your part, to give our recommendations for your problem.

THE CRANDALL ENGINEERING CO., Cambridge, Mass., U.S.A.
Designers and Builders of DRY DOCKS SINCE 1854

Thrills Aplenty

BUT FIRE WON'T BE ONE OF THEM

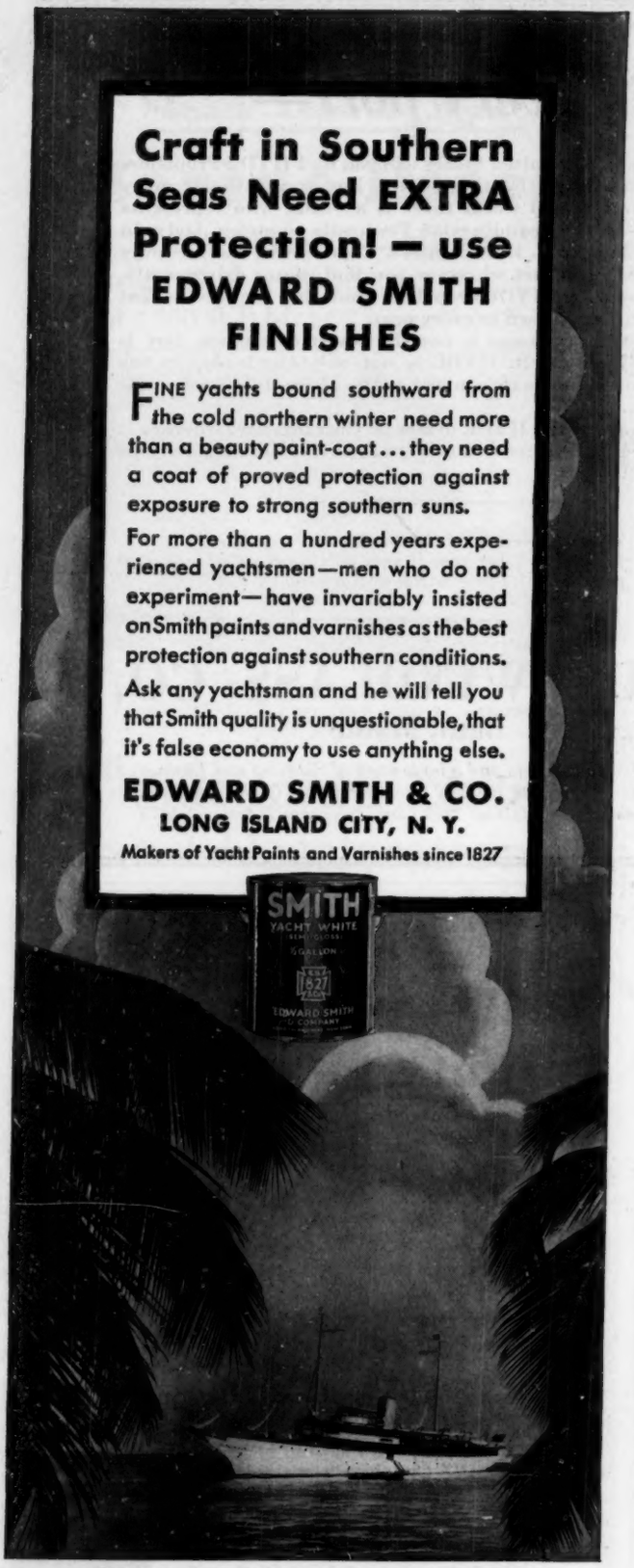
RIDING an aqua-plane at 30 miles an hour. What fun! What a thrill! A serious thing for both rider and those aboard if fire should suddenly flare up.

It can't happen on a LUX protected boat. For LUX kills fire in 3 seconds—even the most severe oil or gasoline blaze. LUX gas, piped to the engine space and bilge and discharged through patented Shielded Nozzles, smothers the flames by displacing the oxygen.

LUX is the accepted fire protection of over 3000 yachtsmen—also the U. S. Navy, Coast Guard, Fish Boats, Cargo Ships and Ocean Liners.

LUX systems are available from $40 up. Write for your free copy of "Cruising Without Fears", explaining details of the LUX System.

Walter Kidde & Company, Inc., 140 Cedar St., New York


Craft in Southern Seas Need EXTRA Protection! — use EDWARD SMITH FINISHES
FINE yachts bound southward from the cold northern winter need more than a beauty paint-coat... they need a coat of proved protection against exposure to strong southern suns.
For more than a hundred years experienced yachtsmen—men who do not experiment—have invariably insisted on Smith paints and varnishes as the best protection against southern conditions.
Ask any yachtsman and he will tell you that Smith quality is unquestionable, that it's false economy to use anything else.
EDWARD SMITH & CO.
LONG ISLAND CITY, N. Y.
Makers of Yacht Paints and Varnishes since 1827
SMITH
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These Edward Smith & Co. distributors are at your service:

CHARLESTON, S. C., J. J. W. Luden & Co.
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entirely by correspondence. Upon my arrival in New Zealand, the work had been satisfactorily completed, with the exception of the deckhouse and awning which extend aft over the cockpit. These I had given instructions to be left unfinished so that they could be built exactly as I wished. On account of the coolness of the weather, New Zealanders do not put any sort of protection over the cockpits of their boats; but in Tahiti it is absolutely essential to have something of this kind, because of the scorching tropical sun. It is impossible to have the covering over the cockpit permanent, as it would interfere with the rod in "pumping" in a fish. So I had a deckhouse built of teak with the roof extending to within four feet of the coaming in the stern of the cockpit. From there back extends a canvas awning on a brass frame, which shades the cockpit. When a fish strikes, the boatman swings this up and forward, where it rests on the top of the deckhouse. This awning is built to give headroom and no more, for if it is too high, it will give shade only in the middle of the day.

These special features for deep-sea fishing were thoroughly tested on our second day out in New Zealand, when *Carrie-Fin*, writer and sportswoman from Tahiti, after whom the launch was named, landed an 823-pound black marlin, the world's record for a woman.

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Westward Without the Trades

(*Continued from page 32*)

anything but comfortable. Commander E. G. Martin in his book *Deep Water Cruising* tells "how tired the crew of *Jolie Brise* became of the incessant rolling and water washing in through the scuppers on one side and out the other."

Now let us consider the route taken by the 60-foot ketch *Stoertebeker* on her westward passage in the spring of 1931. Leaving Vigo in northwest Spain, she made a bee-line for Corvo, at the northwest extremity of the Azores, in order to check longitude on a landfall. Then she continued working farther south to the 36th parallel, which she followed west to the 65th meridian. From this latter position a direct course was shaped for Montauk Point. We made the landfall on Long Island after a run of 31 days and 14 hours from Spain. The course measured 3,200 miles, which gave an average daily run of 100 miles.

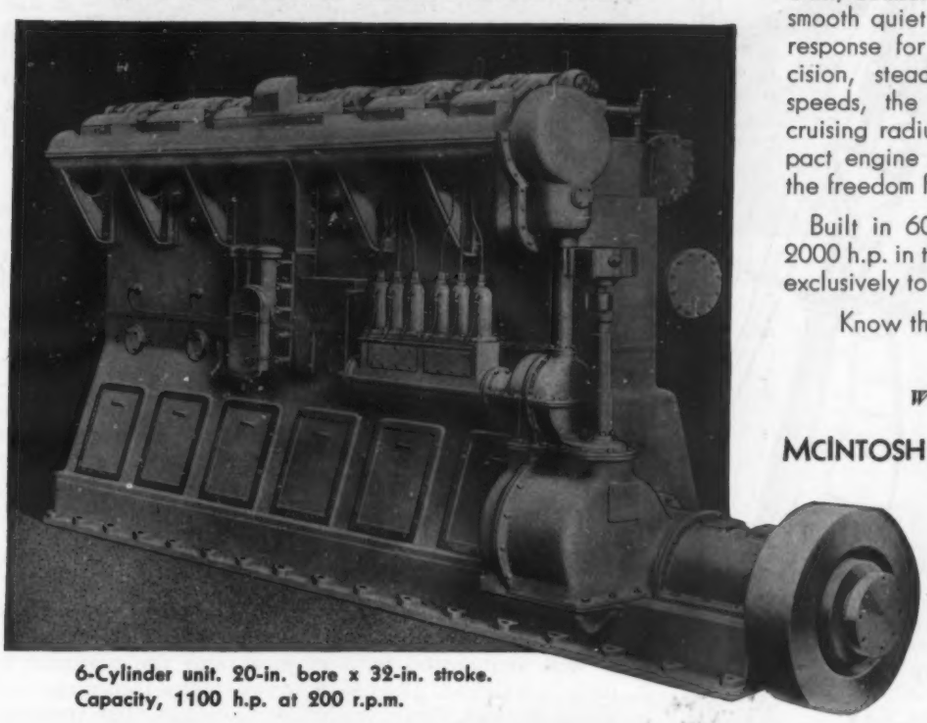
Stoertebeker is no racer, but a cruiser. Surely, her time could have been bettered by *Jolie Brise*, provided weather conditions were similar. I should say that the British cutter could make the run in three or four days' less time. She is a much better performer to windward, and the greatest part of the course along the northern route is a matter of windward work.

After the longitude of the Azores is passed one may expect westerly and southwesterly winds, and the Gulf Stream must be avoided because of its adverse set. By following its southern border, occasional fair winds may be found. In *Stoertebeker*, we crossed the Stream at right angles, where it is approximately 150 miles wide, and had the good fortune to meet fair weather with a fresh breeze that drove us across in twenty hours.

It would be interesting to hear the opinion of men who have crossed the Atlantic east to west or, better, to see someone put my theory to test by crossing along the 36th parallel. Personally, I have no doubt that, with a faster boat than mine, the record for the westward passage set by *Stoertebeker* could be lowered if this route were followed.

And now for the next Transatlantic race — east to west, of course.

McINTOSH & SEYMOUR DIESEL ENGINES



6-Cylinder unit. 20-in. bore x 32-in. stroke. Capacity, 1100 h.p. at 200 r.p.m.

THESE units meet the highest standards of, and add extra value to, pleasure craft, because of the large power reserve, the smooth quiet operation, the quick starting and response for maneuvering, the clock-like precision, steadiness and dependability at all speeds, the low running expense, the long cruising radius on one fueling, the clean compact engine compartment, the cheap fuel and the freedom from smoke and cinders.

Built in 60 standardized sizes from 250 to 2000 h.p. in the largest American plant devoted exclusively to Diesel engines.

Know the facts before deciding upon your power

Write for our latest bulletins

McINTOSH & SEYMOUR CORPORATION
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EXCLUSIVE YACHT REPRESENTATIVE

EARL H. CROFT
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WHEELER "PLAYMATE" *Sea Skiffs*

Speeds up to 30 M.P.H.

22', 26', 28', 30' and 34' Lengths.
Open . . . Shelter Cabin . . . and Full Cabin Models.

Built to WHEELER standards. Remarkably dry in heavy weather. Fast and safe.

Low prices and details await your inquiry. Ask for Catalog B.

NOTE: This new line of Sea Skiffs is in addition to the regular line of heavy duty WHEELER "PLAYMATE" Cruisers and Yachts, sizes 22' to 80'.

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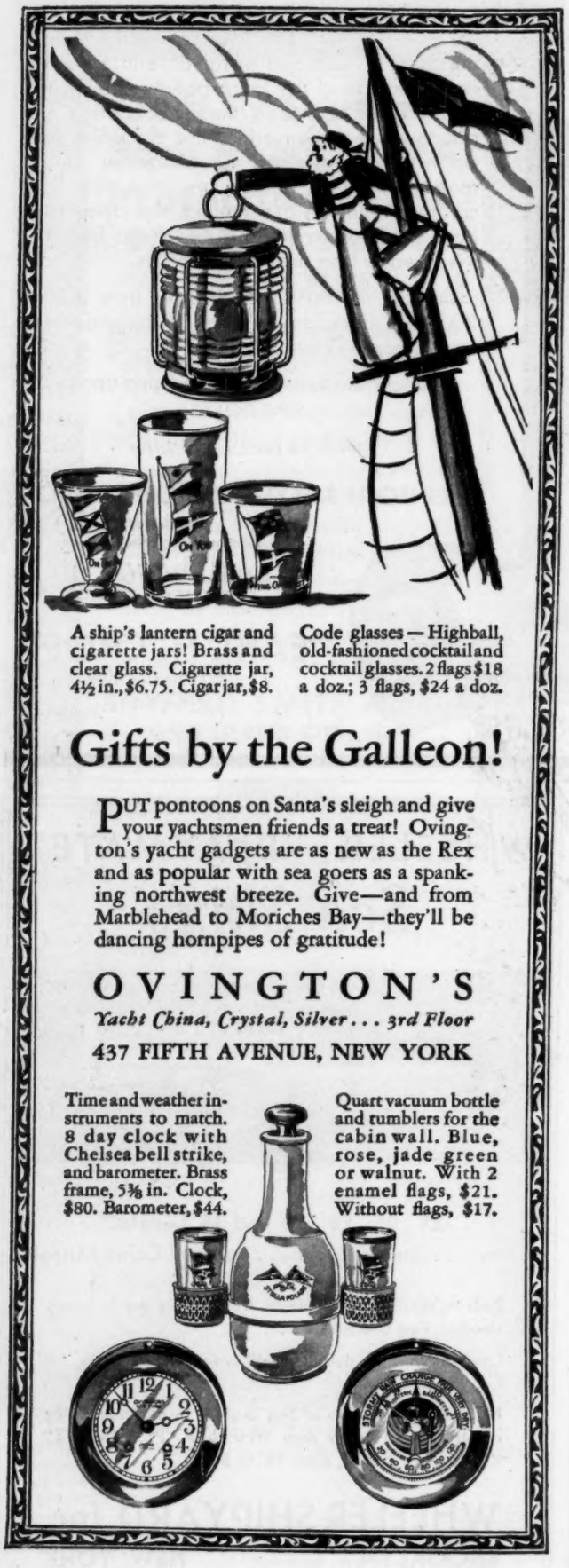
Gifts by the Galleon!
PUT pontoons on Santa's sleigh and give your yachtsmen friends a treat! Ovington's yacht gadgets are as new as the Rex and as popular with sea goers as a spanking northwest breeze. Give—and from Marblehead to Moriches Bay—they'll be dancing hornpipes of gratitude!
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Yacht China, Crystal, Silver . . . 3rd Floor
437 FIFTH AVENUE, NEW YORK
A ship's lantern cigar and cigarette jars! Brass and clear glass. Cigarette jar, 4½ in., $6.75. Cigar jar, $8.
Code glasses — Highball, old-fashioned cocktail and cocktail glasses. 2 flags $18 a doz.; 3 flags, $24 a doz.
Time and weather instruments to match. 8 day clock with Chelsea bell strike, and barometer. Brass frame, 5⅜ in. Clock, $80. Barometer, $44.
Quart vacuum bottle and tumblers for the cabin wall. Blue, rose, jade green or walnut. With 2 enamel flags, $21. Without flags, $17.

The Sponge Fleet of Tarpon Springs

(*Continued from page 30*)

The most interesting characteristic of these hulls is their pronounced bow sheer. Starting from amidships, the deck hikes upward toward the bow in most startling fashion. In the *Anna* — one of the 30-footers — it was impossible for me, a man of average height, standing amidships and looking out over the stem head, to see the horizon. Mounting a sea, it is sometimes difficult to move forward without hauling one's self up the deck slope by gripping the rigging or the rail. The exaggerated rise forward makes for a dry deck and a deep sponge hold.

The only radical change made in the hulls since Jason's ketch-rigged *Argosy* is the counter stern. The Mediterranean boats are all double-enders. Those built in this country are given square sterns. The Greeks all like them because of the greater stability, especially at moorings. This is a large factor because the sponger always rides to ground tackle at night.

The diving fleet is 100 percent motored. The "hookers" are mostly all sail. Palmer is the popular engine. The sail, in the "divers," is used as an auxiliary and in the yawls and ketches the mizzen is used as a steadying sail at night. The mainsails are loose-footed. The long pole that resembles a boom in pictures of the fleet, harbor-furled, is a drying rack for sponges.

The construction of the hulls is very heavy. Yellow pine is used for the frames; white oak for the keel, stem, etc., and the planking is cypress. The Greek shipwright — all those in Anclote learned their trade in Greece — is well acquainted with cypress, and the planking is usually well laid. The use of non-corrosive fastenings and metal work is, however, almost unknown. The sponger, extravagant as he may be in other matters, cannot be convinced that the use of copper fastenings and bronze fittings is an economy, and the neat, new topsides are soon asmear with rust runs and stains. Practically all the leaks are caused by rusted out nails, and there are few dry boats in the fleet.

The cost of construction, as compared with some of the Eastern yacht yards, is very low. A 50-foot hull, with all standing and running rigging but without the engine, could be had for $3,000 last year and is probably much cheaper now. The workmanship, of course, cannot touch the finer American work in detail, but true lines, honest, sturdy construction, and tremendous durability are there.

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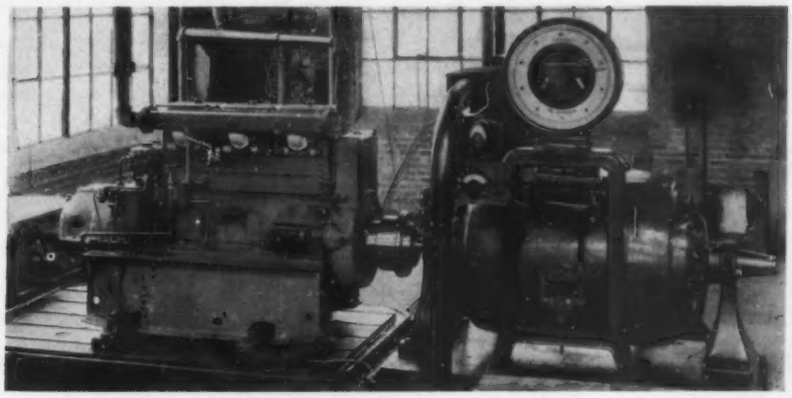
A Question of Policy

(*Continued from page 54*)

ing of Rule 31. It is generally held that if, after the start, two yachts, overlapped, are about to pass an obstruction, with clear water on all sides, which requires the inside yacht to make an appreciable alteration of course to clear it, the outside yacht, whether she be windward or leeward yacht, must allow room to the inside yacht. If, on the other hand, the obstruction is a buoy or an anchored rowboat, so small that it is passable on either side without an appreciable alteration of course, such obstruction is not considered an obstruction to sea room within the meaning of Rule 31, and the inside yacht may not claim room.

How about starting line marks, under the N. A. Y. R. U. rules? Are they, or are they not obstructions to sea room within the meaning of Rule 31? Or does the answer depend upon their size, position and nature?

By Rule 14, the Sailing Rules, in which Rule 31 is included, are in force from the time of the making of the preparatory signal for a yacht's class until she has



This Buda-M. A. N. high-speed Diesel motor was tested thoroughly in the Buda laboratories at full load for 150 hours

The Buda-M. A. N. Diesel

The Buda Company has built Diesel engines of the high speed class for some years in collaboration with the M. A. N. Company of Augsburg, Germany, who pioneered the Diesel in its infancy and have always built an advanced product.

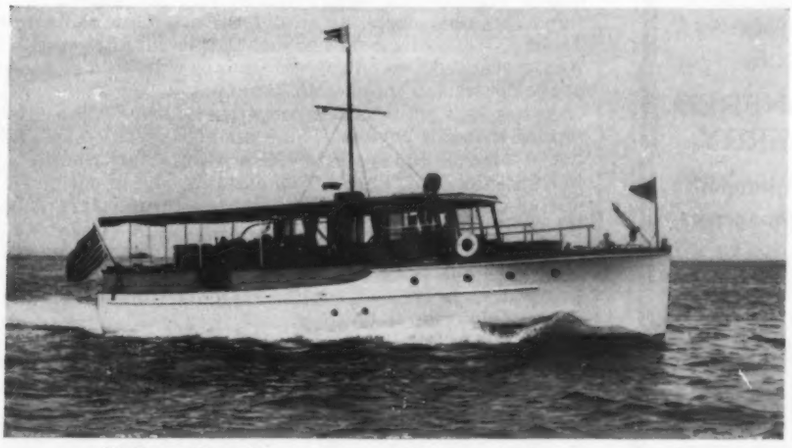
Recent design practice established by laboratory and field tests by the Buda and M. A. N. Companies over a period of the past three years, indicates that high speeds are desirable in a small Diesel engine. Combustion has been developed to a high point of efficiency and ways have been determined to take advantage of the economy of the Diesel cycle, with the compression ignition engine operating under low combustion pressures which insure long life and quiet operation.

The accompanying illustration shows the Buda-M. A. N. marine Diesel engine, model DM6–17, under 150-hour, full load, non-stop test at the company's laboratory at Harvey, Illinois, operating at 1200 r.p.m. This is a 6-cylinder, full Diesel, 5¼″ x 7″, rated 104 h.p. at 1200 r.p.m., and 125 h.p. at 1500 r.p.m., at 75 lbs., b.m.e.p.

The fuel oil consumption at 75 lbs. b.m.e.p. amounts to .45 to .5 lbs. per b/hp/hr. The use of the oil cooler is justified, as proved during this run, as it enables the operator to use the light oil, which results in greatest horsepower output.

(*Continued on page 91*)

A Johnson Sea Horse "32" which is providing invaluable service in the wilds of South Africa



"Ralmarel," an Elco twin screw 50-footer which was recently sold

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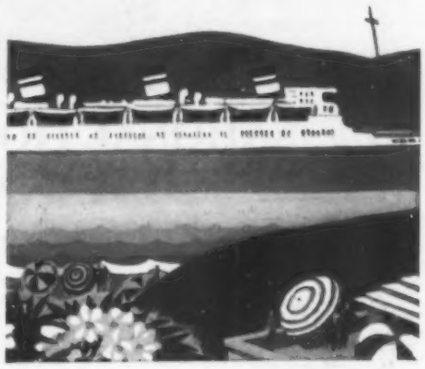

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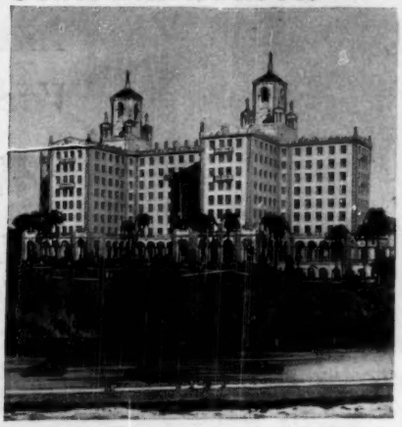

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finished and her entire hull and spars are clear of the finish line. If a starting line mark is a large committee boat or an object which cannot be avoided without an appreciable alteration of course, it would seem that it should be held to be an obstruction to sea room within the meaning of Rule 31. How about a committee boat constituting the windward end of the starting line, lying almost at right angles to the starting line but capable of being passed to windward by a slight luff by the windward yacht? It can be passed without an appreciable alteration of course and, yet, if struck, damage will result. Is it, or is it not an obstruction within the meaning of Rule 31? If met later during the race and lying parallel to the course of the yachts, and passable to windward by a slight luff by the windward yacht, it might well be held not to be an obstruction to sea room within the intent of the rule. If lying across their paths and not passable without an appreciable alteration of course, it most certainly would come within the rule.

There is much to be said in favor of permitting a yacht which has timed and placed her start perfectly to "freeze out" her competitor as heretofore described, especially if the latter yacht, in turn, happens to be followed by other yachts overlapping her to windward. It seems unfair not to permit the leading yacht to capitalize her perfect timing and placing. And yet *any* exception to a sailing rule is apt to cause trouble.

If it be held that starting line marks of such small size or nature, or lying in such position that they may be passed on either hand with no appreciable alteration of course, are not obstructions to sea room within the meaning of Rule 31, and that, as to such marks, a leading leeward yacht, perfectly timed and placed, may "freeze out" her overlapping weather-quarter opponent, differences of opinion as to the size, position or damage-inflicting capacity of the mark are bound to exist, always with the chance of dangerous situations.

The Council of the British Y. R. A. is composed of some of England's most experienced yachtsmen. The Sailing Rules must be the same for all yachts, both large and small. It has seemed wise to the council members to make *no* exception to Rule 31 — at least in so far as marks of the starting line are concerned — and to make the question no longer debatable as far as yachts under their rules are concerned. Would not we be wise to follow their example so that in such a situation the human equation will not be a factor?

\+ + +

Twelve New Outboard Champions

(*Continued from page 58*)

not prevent nine drivers from coming out for the 20-mile marathon for the Defoe Trophy. Dick Neal, a former Bay City-ite, now of Kansas City, spurred on by his "home-towners," captured this race easily, as he did the event for the Cornelius Trophy. While others dashed into the pits for refills of gasoline, Neal continued around the sixteen laps without a stop, to win at the new record speed of 45.332 m.p.h for the 20-mile course.

As has been noted at many regattas this year, Class C events proved the most popular. Those run at Bay City were exciting both to drivers and spectators. The winner, Jack Smith, turned in a speed of 44.33 m.p.h. Two entrants dashed out of the pits and to the starting line half a minute after the start, and were involved in a peculiar accident. They were so close as they swung around the starting buoy that one ran over it and collided with the other, throwing one of the drivers out. The other, with a hole stove in his boat, continued around the course in the face of an obvious disqualification.

The fastest official speed made in an outboard was the mark established in the mile trials by Arthur Sauerberg, of St. Louis. In the two one-mile runs Sauerberg averaged 58.915 miles an hour. The old record, made by Tommy Estlick, stood at 56.525. Sauerberg also accounted for the Class F professional championship.

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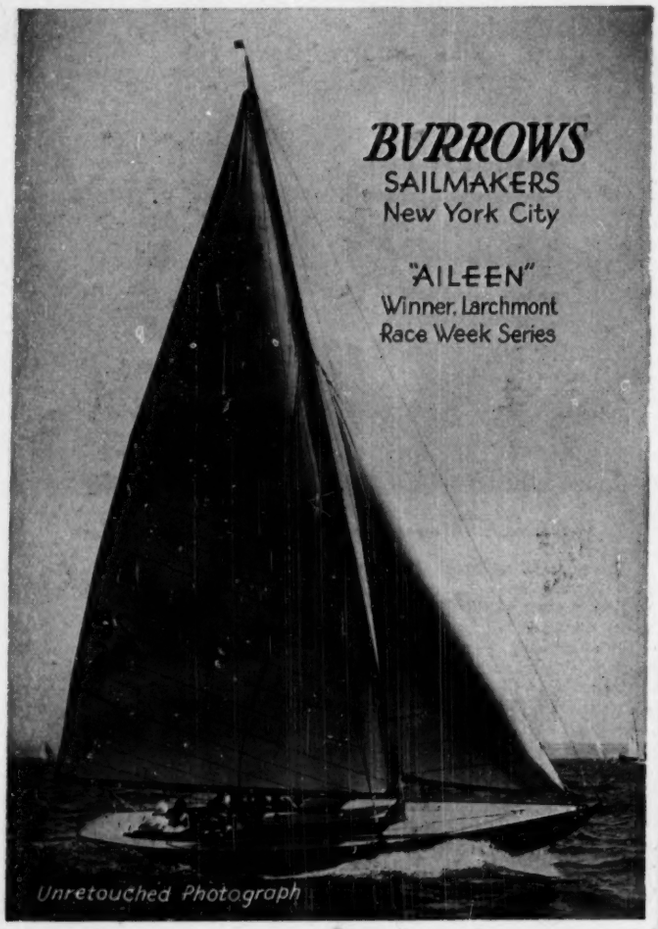
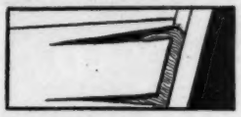


Thousand Uses!



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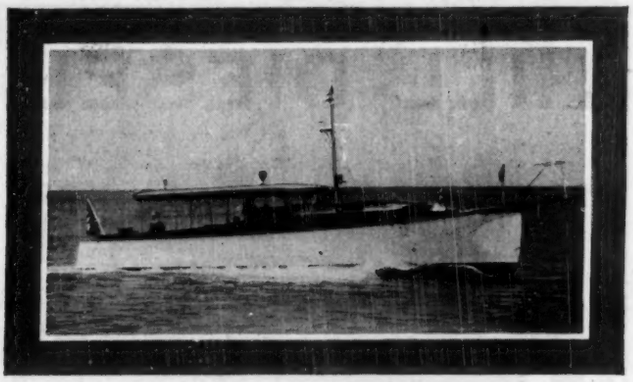

The "46" Sport Cruiser for Deep-Sea Fishing This Winter!

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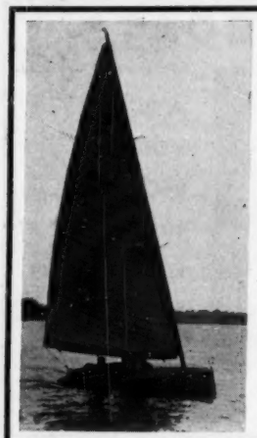

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The Buda-M. A. N. Diesel

(*Continued from page 87*)

A great deal of care was exercised in determining the type of main fuel injection pump for the model DM6–17. This pump requires no adjustment in the field as regards timing. Should any adjustment be required on the mechanism of the pump, the entire unit, which is inexpensive, can be removed by the loosening of four capscrews, and a service pump can be installed in about ten minutes. These pumps hold their calibration and timing accurately for many thousand hours. They are fitted with an advance and retarding lever to regulate automatically the injection point for various speeds. The pump is controlled by a simple variable speed governor and operates flexibly for docking or maneuvering.

The cylinder heads are of Ni-Chrome iron, with replaceable valve seats. The combustion chambers in the heads are the latest M. A. N. type, with two separate "after chambers" which effect a perfect combustion, with clean exhaust throughout the total load and speed range of the engine.

Starting is accomplished by means of a single, high torque electric motor, and without the necessity of compression release. The very high cranking speed developed insures quick starting at all times.

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Star Class Notice

The International Star Class Y.R.A. wishes to give notice that the boat shown on page 20 in the November issue of YACHTING and referred to as a Junior Star, is not the Junior Star Rig which was adopted at the last annual meeting of this Association. The boat above mentioned is not a Star and is in no way connected with the Star Class or the International Star Class Y.R.A.

\+ + +

New Dawn Boat Company

A new organization, the Dawn Boat Company, of Clason Point, N. Y., has been formed to continue the business formerly conducted by the Dawn Boat Corporation and the New York Boat Service Corporation. The new company will be under the direction of Messrs. Hehre, Nelson and Donnelly.

The plant covers 16 acres of New York City property and is equipped to build power cruisers up to 70 feet in length. In addition there are modern facilities for servicing and storing a large number of boats both under cover and in the open.

Dawn will shortly announce a new line of cruisers from 30 to 60 feet, built to the well-known high standards of Dawn-built boats.

\+ + +

Hall Joins Sparkman & Stephens

Harry Curtis Hall, who is well known among both the racing and cruising contingent on Long Island Sound, has joined the brokerage department of Sparkman & Stephens, of 11 East 44th Street, New York. Mr. Hall combines an excellent knowledge of the design and construction of yachts with more than a passing acquaintance of a majority of the yachts along the shores of the Sound, and should be a valuable addition to this fast-growing firm.

Barbasol

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BARBASOL, HUH? SAY I'VE HEARD OF THAT LET'S SEE IT!
HOW WAS IT?
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Hal Stephen

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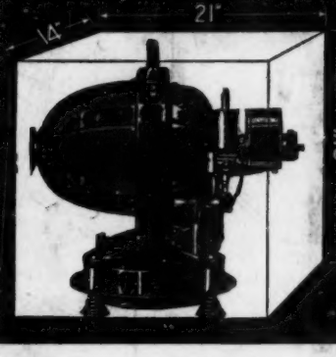

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